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Army Management

THE ARMY, NAVY, AIR FORCE, COAST

3 New Management Methods Now in Use by the Signal Corps

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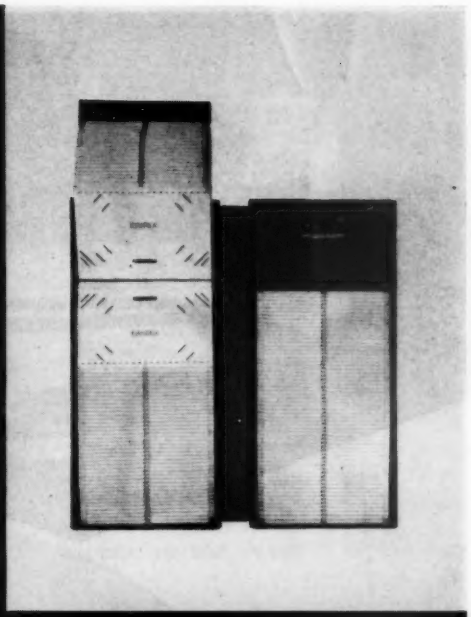

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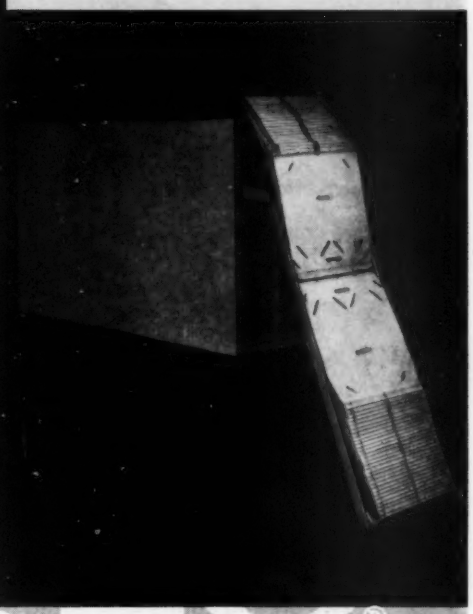

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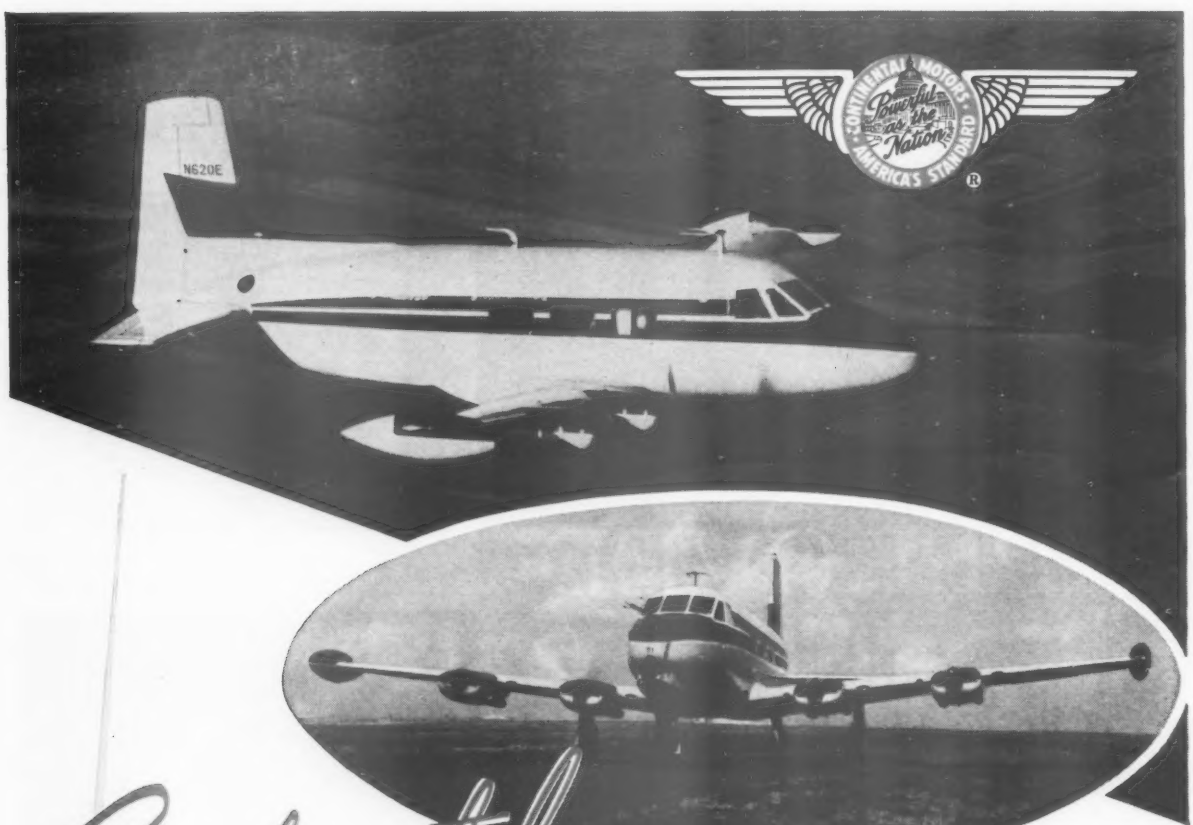

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Three New Management Methods

AND EACH OF THE THREE holds promise for greater economy and efficiency in the future when all of their uses are known. What are the techniques? Electronic Data Processing System (EDPS), manpower control and engineered methods and standards.

Why are they so important today?

• Because the Army must find the best means of economizing by reducing vast inventories of material but still be able to rapidly supply fast-moving combat units.

• Because the Army must determine scientifically what its exact manpower needs are because it must not waste public funds and because it must avoid inappropriate use of the nation's resources of skilled manpower.

• Because the Army must find ways by which its people can do a job better.

Here are the details:

1. EDPS

As the electronic technician of the Army, the Signal Corps is responsible for providing the technical leadership and engineering service to develop and exploit the full capabilities of EDPS and its application to the command and management functions within the Army establishment.

The use of electronic computing techniques for weapons systems, research and various other military applications, has been a major activity for more than a decade. In the past few years there has been increasing emphasis given to the means by which electronic techniques can be used to enhance the management and logistical activities of the Army.

The present trend toward more general and expanded application of EDPS has led toward integration of the systems' equipment with our communications networks. As EDPS is merged with the world-wide communications links which constitute for the Army an essential means for command control, the fact emerges that EDPS is not only a management tool, but a tool of command; and that the global communications network can serve as the basis for an integrated, world-wide Data Processing-Communications system for the Army.

The objectives of the over-all Army program for application of EDPS and high-speed communications equipment to the command and management functions of the Army are threefold: (1) to improve the logistic support of combat forces and thereby increase combat effectiveness; (2) to permit large-scale mobilization without proportional increase in support-type personnel; and (3) to effect economies in personnel and dollars, through improved management techniques.

WHAT EDPS IS...

The Electronic Data Processing System, is the method, rapidly becoming a management science, by which large and small versions of the so-called electronic "giant brains" are utilized in assembling, collating and analyzing masses of data. This modern revolution in communication provides accurate, more complete answers faster than the standard mechanical office machine.

The machine itself is of small value without a high caliber of systems design. In theory its potential is yet to be realized to the services. It's ability to save time, money, and materiel is only as capable as the man who operates it, i.e., designs the systems by which data are fed into it.

This means highly trained, highly intelligent personnel must be researching constantly to develop more ingenious systems to control the machine's function. Without a sound, practical systems processing data, this new electronic giant can become a monster.

But with growth of a systems development science the machine can become, even more than it is today, one of the pillars supporting efficient management.

This story is based on material specially prepared for ARMED FORCES MANAGEMENT by **Major General James D. O'Connell,** USA Office of the Chief Signal Officer

Now In Use by the Signal Corps

Since effective use of EDPS by the Army requires the orderly and accurate flow of data over reliable communications systems, the Signal Corps must continue to provide the reliable, high-speed, high-capacity communications facilities. Moreover, the Signal Corps, as a result of its background in electronics, will provide engineering and technical guidance to the Army on EDPS problems. Finally, the Signal Corps has been assigned the over-all Army responsibility for Research and Development and logistic support of EDPS activities.

A ten-year program has been developed to provide support for the EDPS activities of other elements of the Army. The goal of this program is to provide an integrated Data-Processing-Communications system capable of handling expeditiously the Army's data processing requirements, including its combat support functions. The system will extend from tactical elements through support echelons into and throughout the Army Commands in the United States.

To accomplish this objective, the program has been designed in five parts. The first two, currently being implemented, involve the use of commercial equipment and services to meet the immediate requirements of the Army for electronic data-processing systems. Technical advice, engineering and communications services are being provided and the Army's Command and Administrative Network is being expanded to provide the necessary additional circuits.

The third and fourth parts of the program involve a large-scale Research and Development effort which will result in a family of components comprising a standardized and integrated military Data-Processing-Communications System. It is visualized that both tactical and fixed-plant type equipments will be developed as a result of these programs. The fifth and final part contemplates providing the trained specialists, the training films, the technical manuals and other resources relating to EDPS and the associated communications systems.

As a user, the Signal Corps believes the potentialities of EDPS as a tool for management are virtually unlimited. Two projects already undertaken will serve to illustrate:

• To achieve better management of the Army's supplies, an integrated Electronic Data Processing System is being installed in the Army Signal Supply Agency in Philadelphia. The system is connected through a data transceiver switched network to each of the four Signal Corps Branch Depots in the United States. The system is also connected through the appropriate overseas supply agency, with the Signal supply control point in Europe, and the Far East Command, by transceivers using overseas radio communication links.

Integrated into this system through a transceiver network, is Project MASS (Modern Army Supply System), a test being conducted between the U. S. Seventh Army in Germany and appropriate technical service depots in the United States. To implement this program, an extensive IBM Data Transceiver network was installed in Europe. This network was then tied in to the United States by means of high-frequency radio circuits. A computer is scheduled to be installed in Seventh Army by mid-year in order to accomplish the data processing requirements of Project MASS. This will later operate in conjunction with a computer to be installed at the Tobyhanna (Pa.) Signal Depot.

Through the us of premium transportation and this extensive, high-speed communications network, Seventh Army can now receive replenishment stocks within twenty days of the date of requisition and special items in ten days.

• The second major project involved the establishment of an EDPS Service Center in the Office of the Chief Signal Officer in Washington, D. C. This center will apply EDPS to communications engineering statistical analysis, logistical and statistical studies, comptroller-type functions. It will also be used on financial management and personnel accounting, and such other data processing requirements of the Signal Corps as are developed in the Washington area.

2. Manpower Control

With revolutionary changes in the concepts of warfare, the communications-electronics role in support of the Army has become increasingly complicated. New and highly-specialized skills are needed in greater numbers than ever before. The problem facing the Army is that it must continue to use the most advanced products and systems of our American technology in order to improve its combat capability, yet it must also consider how this can be done with a minimum expenditure of money and manpower.

Manpower Control, as generally applied and understood throughout the Army, is the process of planning, organizing and administering manpower resources so as best to achieve missions without wasting the time, efforts and skills of its people. The greatest single problem inherent to this process is the realistic, timely and inexpensive determination of manpower requirements. The primary purpose of this control is to maintain a balanced relationship between numbers of personnel actually used and the volume of work involved in the accomplishment of an assigned mission.

Manpower Control function has three primary aims: Planning or projecting manpower requirements by program and by organizational elements; Allocation of manpower consistent with established requirements; and continuous review and analysis of the allocated manpower resources to insure effective utilization.

Almost ten years ago, the Signal Corps recognized the need for considering the Manpower Control function. In 1947, the first work measurement program was established. Since those initial efforts, the work measurement effort has greatly increased in effectiveness and in scope, encompassing virtually every major Signal Corps installation and activity.

The rapid expansion of the Signal Corps after the start of the Korean struggle called for intensified management efforts to provide for the orderly growth of facilities, organization and functions. More effective planning, performance and control were required to insure that the large increase in money and manpower made available was used efficiently. During this period, the Signal Corps provided for controls over expenditure of funds, coordinated statements of manpower and money requirements, and for controlling the size and scope of our organizations.

With continuing emphasis upon the Army's Management Improvement Program, the Signal Corps applied a new method of accomplishing management audits at its installations and activities. This method, involving the establishment of numerical values and standards for all phases of management effort, has been successfully employed by outstanding commercial firms and has been recognized as a significant improvement over previous methods of conducting management surveys. The new method provides several notable advantages: (1) brevity, (2) greater objectivity, (3) better comparison of management effectiveness among installations and activities; and (4) use of numerical ratings.

Engineered Standards are now being used to provide precise determination of manpower needs, job scheduling and performance analysis through setting exact time standards for completion of specified jobs. The Engineered Standards Program is currently in being at four Branch Depots and is being expanded to other areas.

The Signal Corps performs its manpower control function in much the same manner as in the other Technical Services of the Army, except that it has established a Personal Control Committee whose function it is to furnish the Chief Signal Officer its recommendations for manpower allotments to all installations and activities under his jurisdiction.

3. Engineered Methods and Standards

The Signal Corps Engineered Methods and Standards System started in October 1954. This system provides a systematic approach to methods improvement and the establishment of relatively precise performance standards. In the application of the system, the Signal Corps proceeded on the theory that the methods improvement portion would yield the largest tangible return on our investment. This has been borne out in actual practice. Significant improvement has been made in these areas. Maintenance and rebuilding of Signal Corps equipment, motor-pool dispatching, and receiving and shipping.

In addition, the standards established under the system have enabled supervisory personnel to: (1) recognize individual performance, (2) establish fair and realistic work goals, and (3) provide balanced work schedules and coordinate the use of men, material and facilities.

One of the major problems confronting the Signal Corps in establishing and improving this system has been the selection and training of technicians—of placing the right man in the right job after training. The greatest effort has been concentrated on operations in our depots, where the largest number of repetitive tasks occur. Gradual expansion is taking place in the clerical and administrative areas where non-repetitive jobs are the rule rather than the exception. To date we have approximately 1500 employees covered by Engineered Standards and look forward to near-complete coverage within the next three years.

What's the pay-off?

For the Signal Corps, it has been a vastly-increased capability for managing affairs and for increasing our combat effectiveness.

The most important ingredient to success of an undertaking which involves control through systems and machines is to maintain an over-riding interest in the part which the individual plays in the system. Man remains, as he always has, the indispensable commodity. Therefore, it has been, and remains, the aim to assure that Signal Corps employees are given proportionately greater career opportunities. Unless this opportunity exists, no management technique can possibly be successful.

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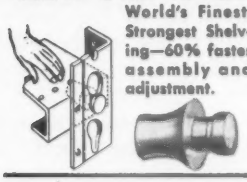

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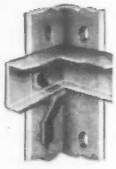

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What ONR's New Role Means to the Navy of the Future

By Admiral Rawson Bennett II
Chief of Naval Research

THE OFFICE of Naval Research has two main jobs. First, it is a scientific research organization, engaged in the pursuit of knowledge. Second, ONR coordinates the research and development programs of the Navy, and acts as advisor to the Navy on scientific matters.

To sum up ONR's duties, it provides supporting scientific research, coordination and evaluation services to the Chief of Naval Operations and to the Navy's material bureaus. It advises the Secretary of the Navy and the Chief of Naval Operations as to the impact of science and technology on the Navy's requirements. In carrying out this work, the Chief of Naval Research also is responsible for patent matters within the Navy and for the design of training devices.

The Navy's R & D interests are broad. They cover nearly the entire spectrum of the sciences and touch almost every engineering field. The Navy supports work in physics, chemistry, mathematics and the earth sciences, because we are interested in guided missiles, aircraft, ships and electronics gear for operation in nearly every environment. It supports the biological and psychological sciences, because the Navy has a million men and their health and morale are an important part of the Navy's readiness to fight.

Navy research and development is organized along industrial lines. The Office of Naval Research is the agency for coordination and for central basic supporting research. It is interested in general scientific principles up to the point where a principle is proven and development can begin. The Navy's functional bureaus—Ships, Aeronautics, Ordnance, Supplies and Accounts, Yard and Docks, Personnel, Medicine and Surgery—carry out development in their own areas. ONR's research feeds into their development programs. They are the manufacturing divisions responsible for getting goods produced for the Fleet. They operate laboratories of their own, for specialized work in specific areas.

The Navy has a big stake in nearly every aspect of the postwar technological shift, with its added emphasis on research. We have become deeply involved in the support of science—as opposed to the mere purchase of new developments—for the same reasons as private industry. Primarily, it is to meet the competition. In industry, there usually comes a time when it is no longer enough to modify the old product to a slightly improved model. It is time for a new product. So it is in military progress. We have to be involved in science, so we know how to recognize the military potential in a new scientific idea. If an organization is not concerned about long-range prospects, it is enough to keep trying for marginal improvements. But if you worry about where the organization will be 20, 25 or 50 years from now, you must feel committed to an interest in basic research, the source of ideas for future progress.

Basic Research: "Support the Scientist"

In carrying out its first job, supporting scientific research, ONR is concerned primarily with laying the groundwork for the long process of applied research, development and testing that goes into the weapons of modern naval operations.

At the time it was established, in 1946, ONR was the only agency in the Federal government engaged in the support of basic research in all fields. Since the advent of the National Science Foundation, ONR has been able to pull out of some of the fundamental areas that it formerly supported. Fundamental research in mathematics is one example.

Fundamental research presents some unique administrative problems. We must remember that, on the basic research level, the scientist knows more than the v.p., in charge of research about what kind of work needs to be done. It is foolish to go to him with a piece of paper that spells out the research that we think we need, want and intend to get. Usually, in this contract research program, the scientist will come to us with a proposal to do some research in which he is intensely interested, and for which he needs support. If the work is in an area important to the Navy, and if the scientist has a reputation for good work, a contract may result.

This basic research policy has two aspects. First, we are interested in the man, not the institution at which he is located. It is his creative power that we are paying for. Second, he and his associates in the laboratory choose their work and formulate their problems.

Let me say that the Navy is not supporting research for charitable purposes; we are being selfish. We want results. We realize, however, that new ideas cannot be produced by imposing our form of taut administration and our approach to problems on a community that lives in a different world, has different aims and entirely different methods than the military community. The record shows that our kind of support for basic research is a productive one.

The New Role Coordination—a Changing Pattern

ONR's second major job, the coordination of Navy research and development programs, is now undergoing marked changes. During the early post-war years, when ONR was relatively alone in the scientific field, coordinating naval research consisted primarily of devising ways to ensure that people working on related problems had access to information produced by one another. The administrative picture, in general, was one of very

informal coordination of research, of separate development programs carried on by the bureaus, and a very broad basic research program conducted by ONR. The over-all coloration of the programs stemmed then, as now, from operational requirements prepared by the Chief of Naval Operations.

When the Department of Defense was established, in 1947, a Research and Development Board was set up to coordinate the programs of the three services.

There was a growing realization of the value of examining an entire warfare area from a research and development standpoint, and this led to the technique known as the large-scale study project. The study project has made great contributions to the coordination of Navy-wide research programs, since it causes all aspects of a problem, including current research prospects, to be examined, and a great deal of information is pulled together.

The Research and Development Board was abolished in 1953 and a year later the Navy began another era of marked changes in its administrative setup for research and development. These changes are all in the direction of a more formal integration and coordination of research and development.

Our most important and far reaching change was to give the Chief of Naval Research responsibility for coordinating the developmental phases of research and development. For the first time, a central point was established for coordinating the many development programs of the technical bureaus. The bureaus are still responsible for preparing and carrying out their portion of the program, in support of their weapons areas.

As ONR views its new responsibility, the general objective of coordination is not to control or to master-mind, but to work together with the different offices and bureaus, and their laboratories and contractors. ONR coordination of research in the past has emphasized improvement of the flow of information among persons actually performing research. Occasionally it would endeavor to sharpen a program and to accelerate the flow of results into the applied and developmental areas. This was done in some cases by an over-all study of a technical field, to see exactly what the current state of the art was, and perhaps point out potential lines for military application.

In ONR's new role, this kind of coordination will be continued, but we must add to it, as we work out methods for coordination of development programs. We know of no clear-cut pattern that can be superimposesd on Navy R and D programs to make everything work perfectly. Probably there is no single best method for what we are trying to do.

Research Coordination

In ONR we have established the administrative structure to do the planning and work out procedures. The research group within ONR has responsibility for corodination of all naval research, and a position of Deputy Science Director for Research Coordination has been established. It is the focal point for policy direction of research coordination activities. Research coordinators have been designated for the various technical fields.

In moving toward this more formal coordination of research, we are making use of the case study method. Since it was not possible to start new coordination efforts right away in all the technical areas, a first step was to select a number of technical areas for study and action, such as metallurgy, corrosion, human engineering, underwater sound, physics, and so on.

A thorough case study has been made in the field of underwater sound. As a result we now know formally exactly what research is being carried on in this field, where and by whom, and what their various relationships are. We have identified the current program on a Navy-wide scale. Our research coordination can now begin to really analyze this program in collaboration with bureau and laboratory people in this field. They will be interested in its technical consistency, its completeness of coverage, and other factors.

Development Coordination

Coordination of development is being handled by a new group in ONR, which reports directly to the Chief of Naval Research. It must be done in at least two ways, to bring about a "three-dimensional approach." Development must be coordinated horizontally, that is, in terms of equipments that perform the same function, to take advantage of all technical advances and to eliminate unwarranted duplication. It must also be coordinated vertically—in terms of the tactical, or warfare, situation to see that related equipments are compatible and that they mesh together without gaps.

Our first job in coordination of development has been to tackle the horizontal type, a review of projects in limited functional areas, with the emphasis on coordination of efforts among the bureaus. Existing projects were evaluated and the group's findings discussed with all the activities concerned. Areas of disagreement were restudied and further discussions held to obtain general concurrence.

When this first job is completed, the group will look at the situation in terms of vertical coordination,

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by warfare areas. This will be accomplished by collateral assignments of personnel in the development coordination group, augmented by military personnel.

The group does not contemplate any formal or continuing committees, outside its own staff. It does not intend to request special reports or formal briefings by the material bureaus. The end product of this group's operations will be recommendations to the Navy Research and Development Committee, where the bureaus, ONR, and the Chief of Naval Operations can participate in policy decisions.

In moving into this new era of coordination, ONR's emphasis throughout has been on achieving coordination through voluntary means. We want to set up facilities that will make it easier for the bureaus, ONR, the Chief of Naval Operations and the various committees to see what is going on, and so help their planning activities.

We are working out administrative machinery intended to produce a tighter program; since there will be more knowledge of work being done by everyone in a given field, and in overlapping fields. We want to achieve these objectives with a minimum of *new* administrative machinery. We believe they can be achieved without sacrificing the many advantages inherent in the Navy's decentralized bureau system with each bureau responsible for all phases of a given weapon, from applied research on through development, production, installation and maintenance.

The increase in sheer size of the national research and development effort, and the Navy's share of that effort, produce the need for better coordination that comes with the growth of any endeavor. In addition, the increase of scientific knowledge, the speedup of its application to technology, with the resultant growing complexity of modern warefare, has brought a demand that research and development be a well-thought-out, coordinated effort.

The administration of research and development in the Navy Department may well grow more difficult as these growth factors continue to operate. Certainly, better methods for obtaining a well-integrated program will have to be evolved. They must be simple, workable, and above all, flexible methods. We are feeling our way in a field that is new in its immensity of scope and size and we must be alert and inventive, yet cautious in application.

Despite the problems, management difficulties and importance of the coordination effort, the most important part of ONR's work remains basic research. It is in this area that the basis for the Navy of the future will be found. The future is our most important business.

This complex Quadratic Arc Computer, built by Northrop Aircraft, Inc., of Hawthorne, California, as ground support equipment for its U.S. Air Force Snark SM-62 intercontinental guided missile program, has established an exceptional record for electronic reliability. Design methods used in the computer may eventually be applied to home television receivers to provide "trouble-free" reception, according to Fred Stevens, missile guidance and control chief at Northrop.

Missile Reliability May Bring Trouble-free Television

Modern methods for designing extra reliability into guided missile electronic equipment may eventually bring "trouble-free" television into the average American home, according to Fred Stevens, missile guidance and control chief at Northrop Aircraft, Inc.

In describing the techniques which have brought unusually high reliability to complex guided missile electronic equipment, he predicted that those techniques will have great application in the design of more reliable electronic equipment for civilian use.

As an example of high reliability in military equipment, he cited the Northrop Quadratic Arc Computer which has been designed for U. S. Air Force use in the field as part of the ground support equipment for the Northrop SM-62 Snark missile. This unit has operated for more than 26 months with only a small number of "trouble calls" required. Estimating that the "QUAC," as it is called, is 25 times more complex than the average home television set, the performance record of the computer would be equivalent to more than eight years of "trouble-free" television operation.

More C-123s to TAC

Hagerstown, Md. (AFPS)—The Tactical Air Command's 464th Troop Carrier Wg. recently became the fourth Air Force organization to be equipped with Fairchild C-123 assault-logistics transports with the acceptance of the first aircraft by the wing's 347th Troop Carrier Sq. at Pope AFB, N. C.

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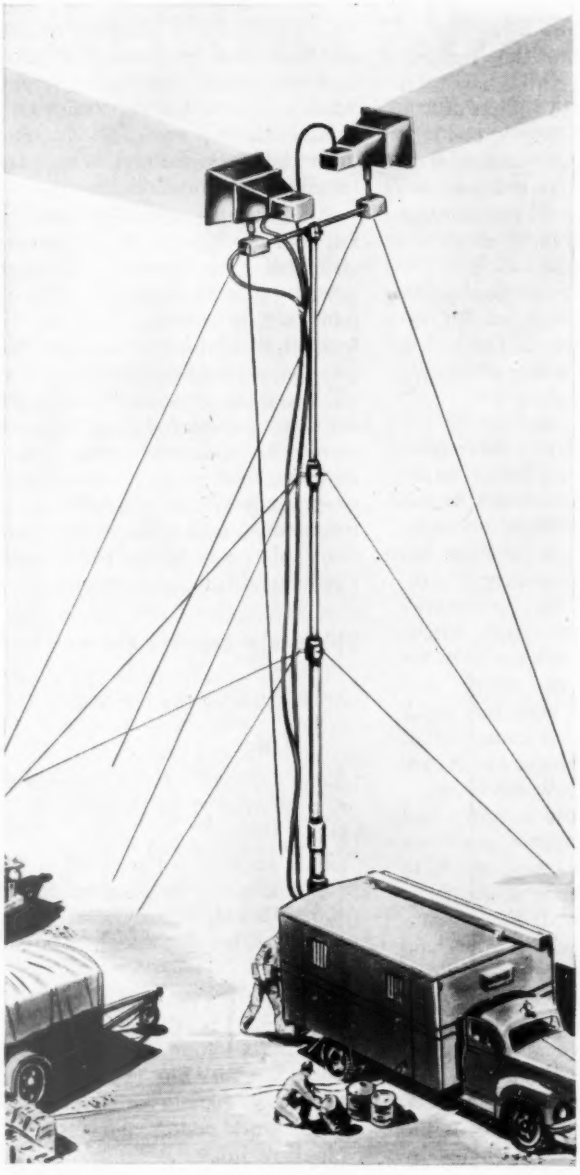

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How the Air Materiel Command Is Using Work Measurement To Get More Air Force Per Dollar

Inefficiency is more often than not due to management ineffectiveness. Here's AMC's answer—

By Major General William T. Hefley, USAF

Commander Air Materiel Command, Europe

THE AIR FORCE, the Army, and the Navy are all trying to get the utmost from each available dollar in order to provide the maximum security to our nation. We in the Air Materiel Command are succeeding through an improved management program embracing work measurement, production control, payroll distribution and standard cost accounting.

Being responsible for the efficient functioning of a logistics system geared to the same state of readiness as the Air Force's fighting units, we must be alert for any and all methods that will produce more Air Force per dollar. In a far flung organization such as ours—including 14 Air Materiel Areas, 7 Air Force Depots, 18 Air Procurement Districts, 4 Logistical Control Groups, 14 off-base storage installations, and other facilities—there is a continuing need for pin-pointing production and manpower problems and solving them at the source.

There is also a need to analyze operational effectiveness on a periodic basis, determine when a job will be completed, determine the optimum capabilities of existing facilities, and foresee personnel requirements of present and programmed projects.

Recognition of these requirements led AMC management in 1953 to select the Sacramento Air Materiel Area as the pilot installation to develop and service test a work measurement program, to be followed by improved production control, standard cost, and payroll distribution systems. Success of the test resulted in the program's introduction in other Air Materiel Areas and Air Depots comprising the world-wide logistics arm of the Air Force.

Work Measurement Effective

We who operate the nation's largest business—(AMC has total assets exceeding $36 billion and is staffed with about 188,000 civilians and 32,000 military personnel)—are finding work measurement an effective alternative to the concept of absentee management in an operation of such scope.

In the old days, a production problem might fester for an inordinate time before it reached a management level where corrective action would be initiated.

No longer do problems of the field level continue to mount until they must be noticed by top management before corrective action is started. Under the improved management program which is fast becoming standard operating procedure throughout the Air Materiel Command, foremen and supervisors are given the tools both for correcting problems where and when they arise, and for rapid transmission to higher management levels of those problems which cannot be solved at a lower echelon.

Aware that private industry had been using work measurement successfully for some years, we were determined to find if it could be adapted to the vast Air Force maintenance shops, where overhaul rather than manufacture predominates and where incentive pay is not offered. Our experience during three successive years of applied work measurement has shown that placing more management responsibility at the foreman level is the answer to the delay occasioned by absentee management.

Under work measurement, the foreman is supplied with a management tool which he has never had in the past, and without which he could not discharge the responsibility expected of him. Our work measurement unit is the work center, consisting of a grouping of men and machines, processes, methods, and operations performing similar work under one supervisor, usually in a centralized area. The number of employees averages approximately 100 per work center.

While work center designation is not dependent upon organizational structure, it is necessary that one person be held responsible for all work within the area and the effectiveness of the organization. The foreman is made a part of the overall management team through the use of engineered performance standards and production information. The work measurement program provides him with daily information and a bi-weekly summary relative to his use of the manpower made available to him.

Bi-Weekly Reports the Key

The bi-weekly summary report not only assists the foreman within his level of responsibility, but also communicates to succeeding levels of management what his problems are and what steps he is taking to correct them.

This analysis is the heart of the program, which is designed to get prompt action on problems which are hampering the effective operation of individual work centers.

I must stress that the AMC work measurement program is not geared toward "speeding up" the individual worker, but rather toward improving management's support of the work center and the individuals within it. Because the average worker in our installations takes pride in doing a fair day's work, we insist that management provide the kind of support that will not handicap him.

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This arrangement insures that action will be initiated to eliminate the cause of low effectiveness in a work center even before the end of the reporting period. Since the foreman knows he will be required to report the reasons for low effectiveness, he is constantly on the alert for such problems and in many instances has solved them before the report is submitted.

Work measurement has been the key to this development and is proving to be a management tool capable of serving all management from the first line supervisor in the shops through all echlons up to the Commander.

Aware at the outset that success of the program would depend on its acceptance by shop personnel, management began by selling it to the shop foreman, with the stipulation that no work standard would be used unless it was approved by the shop foreman. It was agreed that work standards must be engineerer at a rate that was fair to both the worker and to management.

The work standards were set through the application of standard data, time studies and engineered estimates. The next step following establishment of standards was development of a work measurement reporting system. The "Earned Hour" report was designed at Sacramento Air Materiel Area headquarters to carry through management channels a comparison of actual hours expended with Standard or "Earned" hours.

This device compares the time it should have taken (Standard or "Earned" hours) to accomplish specific work with the Actual time expended. When the former is divided by the latter, we find the per cent of labor effectiveness of the organization. The effectiveness rate of each major category of labor is portrayed in the summary reports compiled from Earned Hour reports which are computed and published for each work center every two weeks. In summarizing these reports at each successively higher echelon, each level of management is able to see the major problems that have been passed up by lower levels and to take the indicated corrective action within its own area of responsibility.

Since the value of any such report is dependent on how soon it can be used, every effort is made to have the production count tallies available for the shop supervisor on the day following the turn-in of the source documents (earned hour report sheets). Each shop foreman is thus enabled to take immediate corrective action when it becomes apparent that his effectiveness is dropping.

Earned Hour reports and Sumpary reports operate on the principle of management by exception, with Summary reports enabling top management to focus its attention on problems which were not resolved at the lower levels.

Individual branches within the organization can determine which work centers are contributing to a low labor effectiveness rate; and the work center supervisor can isolate the deficiency within his area of responsibility and take action to remedy it.

Instead of putting undue pressure on the low level supervisor, this procedure provides him with facts which he can use to show those above him on the managerial ladder specifically what is preventing more effective use of the people assigned to him.

Work measurement is producing more efficient working conditions

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in the shops. It is doing away with the waste formerly caused by workmen searching for tools that were hard to find or waiting for the delivery of materials which management failed to provide.

Analysis of Earned Hour reports is on a team basis. Each pay period, the work center foreman sits down with his team, of which he is captain. Other team members include representatives of cost accounting, industrial engineering, and production control. With the foreman presiding, this group goes over the problems indicated in his report, deciding if they are within his responsibility to correct; and if not, within whose responsibility they do fall. Their recommendations are written in the "Remarks" column of the report which then goes to the next management level for review action and further summarization.

Dividends Many

Dividends from work measurement have been many and varied. It has enabled work center supervisors to better adjust personnel to meet shifts in the constantly changing workload. Individual and group productivity can be evaluated with proper attention to those external factors that may be contributing to a low labor effectiveness; such as, poor supply support, inadequate tools, poor layout of working area, improper scheduling, etc. It has made possible the orderly reduction of backlogs, by giving the first-line supervisor knowledge of the time needed to accomplish his current workload.

Management on the Branch level is now able to appraise and evaluate the status of current operations, to determine manpower requirements, to keep proper management emphasis on problem areas, to recognize requirements for shifting personnel to compensate for fluctuating workloads, and to evaluate changes in procedures, equipment, and work simplification projects.

Work measurement also increases the accuracy with which Production Control can develop labor estimates, determine completion times, and arrive at sound workload schedules based upon manpower capabilities. It facilitates the scheduling of personnel and facilitates by different units to accomplish the overall workload. It apprises the chief of the Directorate and his staff of the productivity of each function contributing to the overall mission. It also gives management at this level current information on which to develop realistic operational programs and plans in consonance with manpower and facility capabilities.

Work measurement has further contributed to management improvement in the Air Materiel Command by substituting personnel requirements and budget estimates and by determining skill or trade requirements for projected workloads.

Personnel-wise, work measurement has improved the morale of men in our shops, and has brought the ideal of every man doing a full day's work each day within the possibility of full realization. Inefficiency is seldom the result of employees' unwillingness to do a good job, but more often is caused by management's failure to provide adequate support. We in the Air Materiel Command are finding that with effective management we can get greater production from employees without a bonus; and provide more Airpower with the same people and the same resources. And this we can do without asking for increased speed on the part of the individual worker.

The system is so designed that manpower utilization data flows upward from the work center supervisor through succeeding channels of supervision to top level management. Since it provides the lower levels of management with sufficient tools with which to manage, additional time is made available to high level supervision for planning and developing broad management concepts.

A 35% increase in effectiveness has occurred in the Sacramento Air Materiel Area maintenance shops since the installation of work measurement in 1953. Both at this and at other air depots, where the program has since been introduced, work loads are now being accomplished that would have been impossible before.

A typical example of the increased effectiveness which has resulted from the program may be seen in this comparison between two periods in the same work center at the Sacramento Air Materiel Area headquarters.

The 121 employees in this work center—an instrument repair shop—were turning out 90 instruments per day in November 1953, when work measurement was first introduced in that unit.

In January 1956, the same work center, with only 59 employees, was turning out 80 instruments per day, including one type for which maintenance had become more difficult.

A work measurement program does not eliminate all problems, but it does enable management to isolate its problems and solve them before they assume major proportions.

There is no greater challenge today than that of building the world's best Air Force with the dollars that are made available. Tax dollars which build this mighty force for Security and Freedom must be spent wisely, and the management improvement program with related production control, standard cost, and payroll distribution systems now functioning throughout the Air Materiel Command assures progressive accomplishment in that direction.

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The Economy Book Mart, located at 1847 Gardenia Avenue, Merrick, New York, are offering military readers discounts from 40% to 80% on many of their books. A large number of titles are available in many fields. A complete brochure listing over a hundred books will be forwarded you without cost or obligation. Inquiries and orders should be forwarded directly to—

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● Spring and clamp devices have been installed on switch boxes of floor polishers at the U.S. Naval Hospital, San Diego, Calif. The device cuts down maintenance and repair on the machines with a material saving of $600 a year. Were the savings program not in effect, additional maintenance funds would be required to finance operations.

This Month's Feature Personalities

Major General
James D. O'Connell, USA

Major General James D. O'Connell, USA, was born in the windy city of Chicago on September 25, 1899. He attended elementary and high school in Chicago, the University of Chicago for a year and entered the United States Military Academy at West Point, New York.

He was graduated from the Academy and commissioned a second lieutenant in the Infantry on June 13, 1922. After a varied assortment of assignments both in and outside of the United States, General O'Connell was detailed in the Signal Corps in 1928.

A year later he entered the Sheffield Scientic School of Yale University as a graduate student and received a degree of Master of Science in Communication Engineering in June 1930.

General O'Connell served during World War II in both the European Theater with the 12th Army Group and later in the Far East Command as Signal Officer of the Eight Army. After several technical assignments, the General reported to the Pentagon and was appointed the seventeenth Chief Signal Officer of the United States Army on May 1, 1955.

In this month's feature "Three New Management Methods Now in Use by the Signal Corps," General O'Connell develops them into their tremendous importance to the Army. (1) What are these techniques, (2) EDPS, and (3) Manpower control and engineered methods and standards. The answers to these questions, found in the General's article, have a direct relationship to you and your organization.

Rear Admiral
Rawson Bennett II

Rear Admiral Rawson Bennett, II, USN, Chief of Naval Research brings to you this month the interesting feature entitled "What ORN's New Role Means to the Navy of the Future." Research and portant words to the complex fighting machine of today.

Admiral Bennett was born on June 16, 1905 in Chicago, Illinois. The Midwest held no lure to this sea-minded lad and California is his adopted state. Appointment to the United States Naval Academy from California in 1923, graduation came four years later on June 2, 1927 and a first assignment to the USS CALIFORNIA, flagship of the Battle Fleet.

He completed the course in May 1936, and was assigned to the University of California, Berkeley, for additional postgraduate work, receiving the Master of Science degree in Electrical Engineering. In July 1939, he set up the technical program of the first Fleet Sound School at San Diego, California. In 1941 brought the inevidable Pentagon duty with an assignment to the Bureau of Ships.

There he served first as head of the Underwater Sound Design Section, and later head of Electronics Design Division. The Admiral distinguished himself in the Bureau and was awarded the Legion of Merit "for exceptionally meritorious conduct." In 1946 he reported as director of the U. S. Navy Laboratory, Point Loma, San Diego, California, but at the end of this four year cycle returned to Washington, where in December 1955 he was appointed Chief of Naval Research.

Major General
William T. Hefley, USAF

Nearly twenty years of Air Force maintenance and supply experience preceded Major General William T. Hefley's current assignment as Commander of the Air Materiel Command, Europe. Five times during this period he was assigned to headquarters of the Air Materiel Command and its predecessors in Dayton, Ohio. General Hefley was born a Texan in Cameron on April 24th, 1906.

He entered the Air Corps Technical School at Chanute Field.

General Hefley was appointed Director of Maintenance of the Oklahoma City Air Materiel Area at Tinker Air Force Base, and three months later, Deputy Commander. In April 1950 he became Chief of Staff of Air Task Group 34 which conducted atomic experiments at Eniwetok. August 1951 saw the General back at Wright-Patterson Air Force Base, this time as Assistant to the Commanding General for Plans, Programs, and Requirements.

He became Assistant Deputy Commanding General, AMC and held that position until July 1953 when he was assigned as Deputy and later Commander of the Sacramento Air Materiel Area. The next two years saw many important changes at SAMA, before he moved on to his important post today as Commander AMC Europe. General Hefley has long been an exponent of management. In this issue he explains "How the Air Materiel Command Is Using Work Measurement to Get More Air Force per Dollar."

Washington Management

Department of the Army. Purchase of 12 newly developed mobile vans for use as dental clinics in remote military areas of the United States without dental facilities, was announced recently by the Department of the Army. The new mobile clinics can operate either independently or from fixed electrical and water outlets. Equipped with air conditioning, the units will provide complete dental service, including laboratory, x-ray and a two chair operating room. The need for mobile clinics became evident with the establishment of Army antiaircraft sites located away from established dental facilities, requiring military personnel to travel great distances for dental care. The Army is expected to save $1,500,000 annually when the clinics become operational early in 1957.

Department of Defense. Assistant Secretary of Defense (MP&R) Carter L. Burgess, recently announced the resignation of Mr. Henry A. DuFlon, Deputy Assistant, and the appointment of Mr. Stephen S. Jackson, to fill the position. Mr. Jackson has a long and distinguished career in personnel work in and outside the Government, and has been serving in the Office of the Secretary of Defense as Assistant General Counsel (Manpower, Personnel and Reserve) since May of 1952.

Department of the Navy. A major forward step in the development of one of the Navy's top priority projects—the Fleet Ballistic Missile—was taken last month when the experimental navigational ship USS COMPASS ISLAND (EAG 153) was commissioned at the New York Naval Shipyard, Brooklyn, The mission of the COMPASS ISLAND is to assist in the development and evaluation of a navigational system independent of shore based aids. Once the fast Mariner-class cargo ship Garden Mariner, the rebuilt ship will be one of the most complete and comfortable riding ships in the Navy.

Department of the Air Force. Major General Roy H. Lynn, USAF, has assumed new duties as Vice Commander, Air Defense Command, Colorado Springs, Colorado. Replacing General Harbold who returns to his post as commander of the Joint Eastern Air Defense Force at Stewart AFB, New York, General Lynn leaves his former command the Joint Western Air Defense Force at Hamilton AFB, California.

Department of Defense. Washington (AFPS)—Secretary of Defense Charles E. Wilson has drawn sharp distinctions in the roles and missions of the services to improve the effectiveness of Armed Forces operation.

Although there will be no basic changes, Mr. Wilson in a recent memorandum to the Armed Forces Policy Council clarified and interpreted the present roles and missions of the armed services as established by the modified National Security Act of 1947, particularly in the development of new weapons and strategic concepts.

In accordance with Mr. Wilson's memo, the Army will:

Have a combat zone responsibility up to 100 miles forward of the line of contact with an enemy and extending 100 miles to the rear of the front lines. Earlier directives established the Army's forward area from 50 to 100 miles.

Retain the Army aircraft limit of 5,000 pounds for fixed wing planes and fix at 20,000 pounds the empty weight limit for helicopters in combat operation for command, reconnaissance and air lift of personnel and materiel. Previously there were no limitations on the size of helicopters.

Restrict aviation research to specific requirements peculiar to the needs of the Army, making maximum use of Air Force and Navy aircraft research and development facilities.

Confine development of surface-to-surface missiles for tactical use to a 200 mile range. This will preclude Army employment of an intermediate range missile.

Assume sole responsibility for developing and manning anti-aircraft missiles such as the Nike and Talos for point air defense.

The Air Force will:

Provide air lift of tactical units and supplies and airborne operations in currently approved strategic concepts.

Continued tactical air support and battlefield interdiction for ground forces beyond that which can be provided by Army surface-to-surface missiles.

Have exclusive responsibility for research and employment of land based intermediate range missiles as well as the Intercontinental Ballistic Missile.

Maintain area defense against air attack and responsibility for developing and manning of longer range surface-to-air missiles such as the Bomarc for carrying out this assignment.

The Navy, in close cooperation with the Army and Air Force, is charged with development and use of ship-based air defense weapons systems for accomplishment of its mission.

The Marine Corps is authorized to adapt for its use such surface-to-air weapons systems developed by the other services as may be required for its assigned function.

Mr. Wilson said these clarifications do not "predetermine the weapons to be used by each of the services and their numbers, nor the numbers of men to be trained in various fields."

He added, however, that the Joint Chiefs of Staff had been asked to recommend adjustments in Air Force tactical wings which may be eliminated as the number of planned Army guided missile and rocket units increase.

Department of the Army. The Army Employee Suggestion Program is expected to save an estimated $3,000,000 as a result of suggestions submitted by military and civilian personnel during the

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first three months of Fiscal Year 1957, the Department of the Army announced today.

A total of 16,989 proposals were received from Army employees throughout the world under a program which urges all civilian, offices and enlisted members of the Army to submit ideas for the promotion of efficiency and economy.

Of this number, 4,579 suggestions were adopted for an estimated first-year savings to the Army of $3,-054,244.

In return, 3,700 Army civilian employees received a total of $102,-331 for their ideas, all of which were screened by committees at various installations.

During the same period, 879 military personnel submitted adoptable suggestions. Some officers and enlisted men may receive letters of commendation and, in certain cases, be awarded the Army Commendation Ribbon with Metal Pendant.

United States Marine Corps. Eligible Marine aviators have been given an additional four months in which to submit applications for regular commissions. The change to the integration program, open to officers who were commissioned from the Naval aviation program, gives them until May 31, 1957, to submit applications. The old deadline was January 1, 1957. In order to be eligible for consideration, applicants must have initial dates of rank as second lieutenants between the inclusive dates of June 5, 1954, and June 3, 1955; have been less than 25 years old when they completed flight training, be on active duty and meet physical requirements.

Department of Defense. New wage schedules have been approved for approximately 16,000 wage board (ungraded) employees in the Metropolitan Washington, D.C. area. The new schedules which become effective the beginning of the first pay period after December 1, 1956, average approximately 13 cents. Salary rates for employees whose pay is established in accordance with the Classification Act are not affected.

United States Coast Guard. Approximately 2000 men will be added to the present enlisted strength of the Coast Guard within the next seven months. A recruiting goal of 3641 men has been set for the period. Total enlisted men within the Coast Guard number approximately 25,000.

Department of the Air Force. Retirement policies within the Air Force have been relaxed so that nearly all officers and warrant officers, regulars and non-regulars, may retire at 20-years of service. The change does not apply to general officers. It is anticipated that during the five-year period beginning in 1959 some 35,000 officers will enter the "over 20 years of active service" group.

Department of the Army. Officers cencerned with American-British-Canadian Army Standardization were honored on December 5th at a reception held at the Fort Myers Officers' Club. Lieutenant General James M. Gavin, Chief of Army Research and Development, and Mrs. Gavin acted as official hosts for the Department of the Army. General Gavin is responsible for the United States participation in the program.

Department of Defense. Admiral Arthur W. Radford, USN, Chairman of the Joint Chiefs of Staff, has been chosen as Grand Marshal of the inaugural parade to be held this month. It is believed the parade in honor of the re-elected commander-in-chief, President Eisenhower, will be smaller than that of 1952.

Department of the Air Force. In cooperation with the Civil Aeronautics Administration, three new sets of runway lights will be tested at Andrews Air Force Base, Maryland, during the next few months. The new lights are being developed to end the "black pit" effect of low field illumination. In addition, the systems are being tested against planned increases in military and civilian flying and the conversion to jet transports in 1958.

Department of the Navy. Last month the Navy added another "G" ship to the fleet in colorful commissioning ceremonies at the Boston Naval Shipyard. The USS GYATT (DDG-712), commanded by Commander Charles F. Helme, USN, is a converted 2250-ton WWII type destroyer and the third Naval vessel to be given the "G" designation indicating that the ship's primary duty is missile work. The other two (along with the tactical command ship, USS NORTHAMPTON) the USS BOSTON and USS CANBERRA comprise the world's first guided-missile cruiser division, Cruiser Division Six.

Department of the Army. Lt. Col. Mary L. Milligan will don the eagles and become the new director of the Women's Army Corps on the third of this month. Colonel Milligan has been assigned in the plans and operations branch of CONARC, Fort Monroe, Virginia.

The first three civilian employees to receive the Secretary of the Army's Research and Study Fellowships are presented to President of the United States Dwight D. Eisenhower by Under Secretary of the Army Charles C. Finucane and Deputy Assistant Secretary Franklin L. Orth. L. to R.: Mr. Walter H. Spinks, Executive Officer at the Ft. Belvoir, Va., Engineering and Development Laboratory; Secretary Finucane; President Eisenhower; Mr. Mylon Merriam, employed by the Department of Army Map Service, Corps of Engineers; Dr. Walter S. McAffe, employed by the Signal Corps Engineering Laboratories, Ft. Monmouth, N. J.; Mr. Orth. The awards permit outstanding employees to be re-assigned from their regular duties in order to pursue studies related to their Army careers and which will benefit national defense.

Professional Services

Plan *Your* Future Now . . . Here are the Opportunities . . . and their Locations

In this professional vacancy list published each month ARMED FORCES MANAGEMENT invites the listing of any position, *GS-9* or above. This cut-off point was established on the basis that GS-9 and above positions entail as a major portion of the duties management responsibilities. Space limitations in this Department will preclude so-called "wholesale listings". Apply direct to the installation where the vacancy exists. For information about other jobs, write or visit the nearest military installation.

Title and Location	Grade	Remarks
THE SACRAMENTO DISTRICT CORPS OF ENGINEERS		
1209 Eighth Street, Wright Building		
Sacramento, Calif.		
Agricultural Appraiser	GS-10 and GS-11	
Civil, Hydraulic, Electrical, Structural Engineers	GS-5-GS-11	
Engineering Draftsman and Engineering Aids	GS-3-GS-7	
Geologists	GS-5-GS-9	
ACIC, Washington, D.C.		
Training Officer (General Fields)	GS-11	
ACIC, St. Louis, Mo.		
Analytical Stat Engineer	GS-11	
Air Craft Quality Control Inspector	WB-18	$1.94 ph
Altus AFB, Okla.		
Electrical Engineer	GS-11	
Organization & Methods Examiner	GS-9	
Amarillo AFB, Tex.		
Clinical Psychologist (Adult)	GS-12	
Social Science Analyst	GS-11	
Ardmore AFB, Okla.		
General Engineer	GS-9	
Supervisory Accountant	GS-9	
Supervisory Cost Accountant	GS-9	
Supervisory Commissary Officer	GS-8	
Barksdale AFB, La.		
General Engineer	GS-11	
Supervisory Firefighter (Gen)	GS-9	
Biggs AFB, Tex.		
Architectural Engineer	GS-11	
Supervisory General Engineer	GS-11	
Brookley AFB, Ala.		
Industrial Defense Advisor	GS-12	
Contract Specialist (Price Analysis)	GS-12	
Supervisory Procurement Analyst	GS-12	
Systems Development Analyst (Elec Processing Data)	GS-11	
Purchasing Agent	GS-11	
Contract Specialist	GS-11	
Contract Specialist (Price Analysis)	GS-11	
Management Operations Analyst	GS-11	
Cost Accountant	GS-9	
Organization & Methods Examiner	GS-9	
General Supply Officer (Mgmt & Proc)	GS-9	
Systems Accountant	GS-9	
General Supply Officer (Work Measurement)	GS-9	
Requirements Officer	GS-9	
Purchasing Officer	GS-9	
Distribution Officer	GS-9	
Management Operations Analyst	GS-9	
Electronic Processing Equip Programmer	GS-9	
Purchasing Agent	GS-9	
Metallurgist	GS-9	
Communications Specialist (Telephone)	GS-9	
Electronic Engineer (Gen)	GS-9	
Tool and Gage Designer	GS-8	
Real Property Officer	GS-7	
Bryan AFB, Tex.		
Architectural Engineer	GS-9	
Carswell AFB, Tex.		
Gen Engineer (Elec & Mech)	GS-9	
Civil Engineer	GS-9	
Supervisory Production Specialist (Gen)	GS-9	
Castle AFB, Cal.		
Research Psychologist	GS-12	
U.S. Naval Station, Consolidated Industrial Relations Office, Bldg. 131, New Orleans 12, La.		
Architect	GS-12	
Architect	GS-11	
Electrical Engineer	GS-9	
Mechanical Engineer	GS-9	
Construction Management Engineer	GS-9	
Marine Engineer	GS-11	
HEADQUARTERS FIFTH ARMY		
Civilian Personnel Office (5001), Headquarters Fifth Army, 1660 E. Hyde Park Blvd., Chicago 15, Ill.		
Architectural Engineer	GS-11	
Electronics Engineer (Telephone)	GS-11	
Mechanical Engineer (Heating)	GS-11	
General Engineer (Maintenance)	GS-10	
Chanute AFB, Ill.		
Psychologist and Experimental Psychologist	GS-12	
Psychologist and Experimental Psychologist	GS-11	
Electronic Engineer (Radio)	GS-11	
Cheli AFS, Cal.		
Supervisory Production Standards Spec.	GS-11	
Industrial Engineer	GS-11	
Mission Evaluation Inspector	GS-9	
Analytical Statistician	GS-9	
Supervisory Civil Engineer (Gen)	GS-9	
Clovis AFB, N.M.		
Supervisory Accountant	GS-9	
Dover AFB, Del.		
Civil Engineer	GS-11	
A/C Sheet Metal Mfgr & Rpr	WB-16	
Dow AFB, Maine		
Management Analyst	GS-9	
Ent AFB, Colo.		
Air Technical Intelligence Specialist (Aircraft & Guided Missiles)	GS-14	
Operations Analyst	GS-13	
Management Analyst	GS-13	
Architectural Engineer (Specifications)	GS-12	
Cost Analyst	GS-10	
Communications Rate Examiner	GS-9	
Gadsden AFS, Ala.		
Systems Development Analyst (Elec Processing Equipment	GS-11	
Supv Maintenance Technician (Elec Generators & Power Units)	GS-10	
Logistics Officer	GS-9	
Organization & Methods Examiner	GS-9	
Maintenance Technician (Aircraft Electrical Generating Equip)	GS-9	
Maintenance Technician (Utility Electrical Generating Equip)	GS-9	
Maintenance Technician (Furniture and Fixtures)	GS-9	
Maintenance Technician (Agriculture Equipment)	GS-9	
Griffiss AFB, N.Y.		
Supervisory Industrial Engineer	GS-12	
Electronic Engineer	GS-12	
Supervisory Mathematician	GS-12	
Electronic Engineer	GS-11	
Electrical Engineer	GS-11	
Mechanical Engineer	GS-9	
Electronic Engineer	GS-9	
Mech Engineering Draftsman	GS-9	
Elec Engineer	GS-9	
Architectural Engineer	GS-9	
Industrial Engineer	GS-9	
Equipment Specialist	GS-9	
O & M Examiner	GS-9	
Physio & Exper Psychologist	GS-9	
Harlingen AFB, Tex.		
A/C Electronic Equip Repairer & Installer	WB-17	$2.01 ph
Larson Air Force Base, Wash.		
General Engineer	GS-9	
Laughlin AFB, Tex.		
Mechanical Engineer	GS-9	
Little Rock AFB, Ark.		
Mechanical Engineer	GS-9	
Lockbourne AFB, Ohio		
Management Analyst	GS-9	
Civil Engineer	GS-11	

Ideas in Operation

A monthly review of some of the better ideas adopted by installations in the Armed Forces. Can these ideas save for you?

Case One

Reported By:

Signal Corps Training Center, Fort Gordon, Georgia.

Improvement:

Reduction in mail handling costs.

Date Installed:

April, 1956.

(Primary Command) Program Affected:

Training Program.

Field for Emphasis:

Personnel and Equipment Utilization.

Background:

The reduction in mail handling costs was the result of a methods improvement study of mail handling procedures within the command. This study was made in connection with the scheduled establishment of engineered standards for this function.

Before Improvement:

a. Prior to the study, mail was delivered by the Postal Branch throughout the Southeastern Signal School area and to SCTC Headquarters, using 2½ ton, 6x6 trucks with motor pool drivers. Mail for the TQE units of the Signal Corps Unit Training Group was picked up at the Postal Branch by organic vehicles from each unit. A speedometer check of the 13 vehicles involved indicated a total daily mail hauling mileage of 96 miles. The two 2½ ton vehicles were utilized on a full-time basis, the vehicles from SCUTG on a part-time basis. The original method required 33 separate vehicle trips daily.

b. The layout of the mail breakdown and sorting area was studied with finding that the locator area was too far removed from the mail breakdown area, causing long carries of mail to be directorized. Additionally, much human effort was being expanded in dragging single mail bags from the truck unloading platform to the sorting area.

After Improvement:

a. A stopwatch study was made of the separate trips in the mail handling process and the various routes charted on a map of the area. Through a rearrangement of schedules and elimination of duplication and overlapping, the work of the 13 tactical vehicles was accomplished by one 1½ ton, 4x2, van. Consolidated runs were developed to include service to the SCUTG units formerly picking up their individual unit mail. The original 33 vehicle trips were reduced to 5 vehicle trips for a total of 33 vehicle mail miles per day.

b. The building work area layout was improved by moving the locator section into an available area adjacent to the mail breakdown and sorting area. A four-wheel, platform truck was obtained to move mail sacks from the truck platform to the sorting area. Mail sack racks were relocated closer to the mail cases, shortening walking and carrying distances. Desks of persons involved in clerical and typing tasks were relocated to take advantage of available natural light.

Gains:

a. One 1½ ton administrative van now performs the work formerly performed by 2 full-time and 11 part-time tactical vehicles. Two 2½ ton vehicles were turned in as excess to mail handling requirements, being replaced by the 1½ ton van. No cost reduction is claimed on 11 TOE part-time vehicles, even though they were no longer used for mail handling. The total value of equipment turned in, less value of van and platform truck drawn, is $11,208.25.

b. The annual savings in gasoline and oil consumed amounts to $1,269.84, using Transportation Corps mileage costs for tactical and administrative type vehicles. The computation is based on the relation of the original 96 tactical vehicle miles to the improved administrative vehicle miles.

c. The improved method of mail handling eliminated 19 mail-handling man-hours daily, including one full-time truck driver. The cost of these man-hours was $3,117.40 per annum.

d. The improvements in work area layout are too numerous to enumerate; however, distances have been shortened on many tasks, better working obtained through taking advantage of natural light, work made easier through use of a labor saving platform truck, and many others.

e. Through inclusion of only the tangible reductions in costs, an over-all figure of $15,595.45 was obtained. The utilization of part-time personnel on duties more appropriate to their training objective is considerable, but not measurable in terms of monies.

f. The improvements installed did not decrease mail service in any way, as the same twice-daily delivery and pick-up of mail is provided to each of 37 mail rooms. The former service is improved, as all runs now operate on schedules covered by written standard practices, thus eliminating waiting time of unit mail clerks at their respective mail rooms.

Techniques Used:

Engineered Methods and Standards System.

Case Two

Reported by:

Chicago QM Purchasing Center.

Improvement:

Space Utilization.

Date Installed:

Continuous.

This new section in ARMED FORCES MANAGEMENT is intended to bring you each month case histories of importance which may be applicable to your operation. Have you the history on file of an idea which could assist others? If so, send it in the form shown on this page to ARMED FORCES MANAGEMENT.

Field of Emphasis:

Effective Utilization of Government Space.

Background:

Deactivation of Storage Division at this installation resulted in a considerable amount of vacant space becoming available, which was not presently required by TQMG. The Installation Commander placed special stress on making this space available to other Government activities.

Before Improvement:

The Department of Defense activities involved were occupying leased space. One Non-Department of Defense activity involved was occupying leased space, while another occupying government-owned space could not make required expansion in that location.

After Improvement:

The activities involved were allocated space in this Installation by TQMG with the following results:

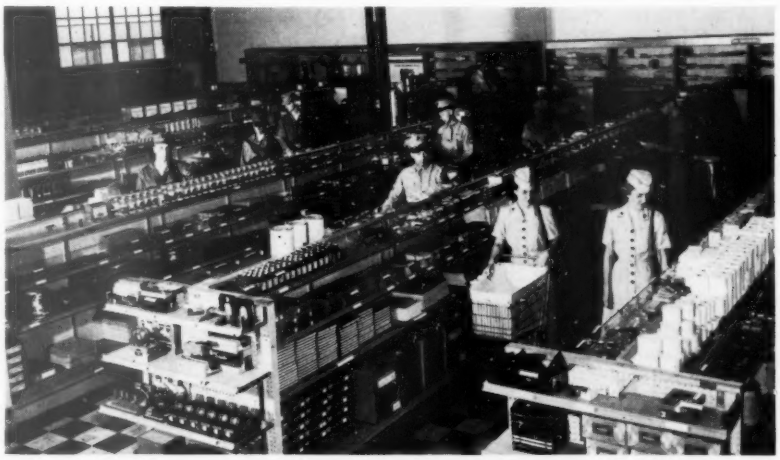
	Space Allocation	Annual Rental
Department of Defense Activities (Non-QM)	139,057 sq. ft.	$215,136.00
Non-Department of Defense Activities	246,430 sq. ft.	86,250.00
Totals:	385,487 sq. ft.	$301,386.00

NOTE: Where activities formerly occupied leased space, the actual former rental fee was used in computation; where activities moved from Government owned space, minimum estimate of rental rate if required expansion had been made into leased space was used in computation.

Utilization of Government owned space at this Installation resulted in an overall benefit to the Government of $301,386.00 per annum.

Management Techniques Used:

Special Projects.



Marines from various organizations at Marine Corps Schools, Quantico, Va., shop in minutes for items it formerly would have taken them days to get through old supply procedures. The scene is the new Self-Service Supply Center at Quantico—first of its kind in the Marine Corps. The Center's shelves offer 2,000 items of office, cleaning, repair and maintenance supplies, valued from a fraction of a cent to $25. Besides its rapid supply and economical features, the Center reduces unit storage space and spreads cost-consciousness among its Marine patrons. (Official Marine Corps Photo)

Quantico Marines Use Self-Service to Save

By MSgt. A. L. Petry

WHEN it comes to shopping for housekeeping necessities the little woman has nothing on her Marine husband at the Marine Corps Schools in Quantico, Va.

With the formal opening recently of the Self-Service Supply Center at Quantico, economy-minded Marines now shop for their organization's needs on a par with the family homemaker in a Marine Corps version of the modern super-market.

Complete with shopping carts and a check-out counter, the Center offers from its long rows of shelves 2,000 items of stationery, cleaning and housekeeping materials, hardware, tools, galley and organizational equipment to its Marine customers.

Patrons are Quantico's command and administrative units which "buy" directly from the Center by arranging for a definite amount of credit with their parent organizations.

Aimed at economy and speedy delivery of supplies, the Center initially makes the shopper's job easier by doing away with a military bugaboo, the "Requisition for Supplies" form.

In its place the Center substitutes a military version of the department store "Charge-A-Plate" which serves the patron as authority to make his "purchases."

Although there is no actual cash involved in transactions at the Center, purchases are charged against a unit's credit. So cost-conscious Marines hunt for "Bargains" as if they were dipping into their own pockets to pay for items themselves.

The Self-Service Supply Center, first of its kind in the Marine Corps, is being operated on a expermental basis at present, but its planners are optimistic that it will become a permanent fixture of the Corps' supply system.

"We feel," Col. Richard B. Church, Marine Corps Schools Supply Officer, the originator of the system in the Marine Corps, said, "this method of supplying units with work-a-day items will prove to be the fastest and most economical yet devised.

"And just as important," Colonel Church continued, "it will spread cost-consciousness even further among the men and women of the Marine Corps, resulting in still greater economy with the taxpayer's dollar."

● Rogers Corporation, Rogers, Conn., feels that ex-union heads have a lot to contribute to good employee relations. It suggested the formation of a "Past President's Association." It was approved by the workers and now this group is formalized to give counsel to both sides. *Employee Relations Bulletin 2-8-56—National Foremen's Inst.*

Business and Finance

by W. Mac Stewart

Vice President—Research, Hamilton Management Corp.

With this issue, Armed Forces Management inaugurates its Financial Page, edited by W. Mac Stewart, one of the nation's foremost securities analysts. In addition to presenting a monthly financial editorial written expressly for the Career Officer, Mr. Stewart will personally answer your questions on investment problems. Be sure to include your mailing address, as inquiries will be answered by mail, rather than on this page.

An American Phenomenon

Over the past years financial and economic writers have dwelt at length on their favorite theme: The Growth of American Industry. However, relatively few of them have analyzed the most interesting and vital element in that growth—the broadening base of participation in industry.

Just what is this potent development that has come upon the changing American scene? *It is the expanding ownership of America's corporations by average citizens.* Not so many years ago, investment in common and preferred stocks was thought to be the privilege of the wealthy few. Not so today. The 1956 Census of Shareowners, conducted by the New York Stock Exchange, reveals that one of every 12 adult Americans is the stockholder of a public corporation, and many more own shares in smaller private corporations.

This participation is a socio-economic force comparable in its long term effects to the Industrial Revolution of the 19th Century. Its effects are as far reaching as the more recent revolution in consumer income that has created mass markets, vast consumer purchasing power, and the standards of living in the fabulous '50's.

What are the underlying factors that have created this growing ownership of American business by the wage earner, the housewife, the student, the professional man, and the laborer alike? Certainly there are many. Like any major change, this new force has not been generated overnight by any single condition. Rather, it is the result of a gradual evolution in thinking, growing from economic progress and social developments.

Clearly, Mr. John Jones, U.S.A., is under no compulsion to invest in securities. Yet he and millions of other average Americans are becoming stockholders at the rate off 500,000 per year. What is motivating Mr. Jones to purchase ten shares of General Motors, or five shares of RCA, or the stock of any industrial enterprise?

Some of the circumstances and attitudes that have led to this growing ownership of stock are:

1. The phenomenal increase during the post-war years of the number of family units with cash income after taxes of $4,000 to $7,500 per year. There are now more than 18,000,000 families in this "middle income" bracket, compared with only about 12,000,000 in 1946. This income group now comprizes roughly 35% of the nation's families. These higher incomes permit some spending for "extras," and some form of savings and investment. Many of these families have chosen stocks as the medium of investment. This is proved by the N. Y. Stock Exchange's Census, which reveals that two-thirds of the adult shareholders are in families earning *less than $7,500* per year.

2. Sales of open-end investment company (mutual fund) shares have grown spectacularly in recent years. Through monthly or lump sum purchases of mutual fund shares, thousands of families have for the first time, become part owners of a cross section of American industry. Net assets of open-end mutual funds now are approaching $9,000,000,000, compared to $1,-500,000,000 only nine years ago. Net purchase of mutual fund shares are now at the rate of $75,000,000 monthly.

3. Corporate profit-sharing plans, stock purchase options for employees, and stock bonus arrangements have encouraged direct participation by employees in the progress and profits of their employers. Many individuals, starting from this introduction to stock ownership, have also purchased the stock of other corporations in the same or allied industries, or in mutual funds.

4. The New York Stock Exchange and its member firms have, through excellent advertising and

WHAT WOULD YOU LIKE TO SEE ON THIS PAGE?

This page is for you, the reader. We hope to cover the subjects that will be of greatest interest to the most readers. If you have any suggestions as to the type of financial information you would like to have covered here, won't you let us know? Just drop a line to the Financial Editor, Armed Forces Management, 208 So. Second Street, Rockford, Illinois.

a new enlightened sales approach, exploded the myth that stock ownership and stock brokers are only for the wealthy.

5. The New York Stock Exchange Monthly Investment Plan, inaugurated three years ago, has added many new first-time investors to corporation stockholder lists.

6. Corporate executives have become increasingly aware of the benefits to the corporation in having a long list of stockholders. When a corporation's stock is widely held, the stockholders become both customers and a reservoir of capital which can be obtained for expansion by giving stockholders special stock purchase rights. To achieve this broader base of ownership many leading companies have split their stock, issuing one or two additional shares for each share held. This reduces the price of the stock to one-half or one-third of its previous price, thus appealing to many small investors who would prefer buying 30 shares of stock at $20 per share rather than 10 shares at $60 per share.

These are some of the developments that have led to a 33% increase in the number of shareowners in the short span of only four years. There are some nine million shareholders in the nation now, compared to less than seven million in 1952.

Does this growing trend of stock purchases by small investors mean that a speculative "get rick quick" fever is rampant, as in the days of 1928 and '29? Certainly not. The average small investor today does not purchase stocks for speculation, but with the intention of holding them for growth or income. The investor of today, generally speaking, is aware of both the rewards and risks of common stock ownership. He knows that any stock investment will fluctuate in value, but he has a well-founded faith in the long term industrial development of the United States.

It is interesting to note that only in the United States does this broad base of ownership of industry exist to such an extent. Most experts agree that this growing participation by the average wage earner in the profits of American industry is certainly a contributing factor in our industrial leadership. This American phenomenon, which has helped bring us the world's highest standard of living, has proved to be the economic answer to the foreign ideologies to which we are constantly subjected.

If you are not now, it is likely that you, too, will someday become a participant in instead of a spectator of this democratic "People's Capitalism."

Banking Rates Revised For Overseas Patrons

Washington (AFPS) — Overseas banking facilities will operate under a revised schedule of charges for services to the Armed Forces starting Jan. 1, 1957.

The new rates, authorized as a result of recommendations by overseas commands, will provide a more equitable system of charges for users of the various banking services, according to a joint announcement by the Army chief of finance and the Treasury Department.

The new schedule will:

- Cut the fee for cashing stateside checks from three-fourths of one per cent (minimum charge 40 cents) to one-fourth of one per cent (minimum charge 10 cents).
- Permit a monthly charge of 50 cents on checking accounts where balances fall below $200 during the month.
- Charge 25 cents for each withdrawal in excess of two made by savings depositors during the month.
- Assess a fee of $1, plus actual costs, for checks returned because of insufficient funds.
- On checks accepted for collection, charge depositors only the actual expense incurred; those without accounts, one-eighth of one per cent or a minimum charge of 25 cents.

The overseas banking facilities affected are the American Express Co., the Bank of America, the Chase National Bank and the First National City Bank of New York.

● All worn out sheets and mattress covers are washed and used as wiping rags at the Naval Air Station, New Orleans, La. More than $90 a year is saved in the process.

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"agony of frustration"

reported to be the general situation by Drs. Gardner and Moore in their authoritative book *Human Relations in Industry?*

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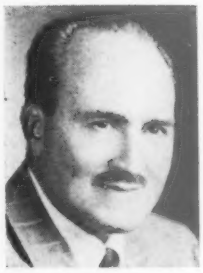

This month marks the beginning of a new department in this magazine —On Capitol Hill. We expect to keep you advised of legislation affecting you and your family, your work, and the uniformed services, and, at times, of pertinent court rulings and legal decisions resulting from efforts of officers to challenge various statutes.

The past two or three years have witnessed the enactment of more beneficial military personnel legislation than any previous corresponding period. There is still plenty of room for improvement in military life, in pay and housing. The 85th Congress, now is session, will have many personnel bills to consider, some of which were sponsored in the 84th Congress, but failed of passage.

In our opinion, the program to attract and keep good men will be a continuing one. New needs will arise; existing laws will need amendment.

Personnel-wise, there has been comparatively little change in the groups which were so successful with personnel legislation in the last two years. The White House and the Defense Department have about the same top personnel. There are changes in the bodies which sponsor and push the legislation within the services and present it to Congress, but there is no change in the skill and enthusiasm, necessary to do this.

The Budget, Its Influence

The House and the Senate Appropriations subcommittees dealing with military appropriations are much the same as in the 84th Congress.

Unofficial estimates of the Federal budget for the fiscal year 1958 (beginning July 1, 1957) are: Defense—from $38 billion to $40 billion; Non-defense—from $34.1 billion to $34.6 billion. The proposed totals for bottom and top estimates are $72.1 billion and $74.6 billion. Some reports indicate that the President will send to Congress the lower figures; estimated revenue for the year is $72.5 billion, and the President has been requesting a balanced budget.

For fiscal 1958 the services asked originally for a total of $48 billion —Air Force $24 billion; Navy $13 billion; Army $11 billion. However, all government departments ask for more than they expect to receive.

For fiscal year 1957, the Federal budget may total $69.1 billion—$36 billion for Defense and $33.1 billion for Non-Defense. Revenue may top $70 billion.

The need to keep expenditures down is one reason why Secretary of Defense Charles Wilson took intermediate and long-range missiles and all but the lightest planes out of the Army budget.

In fiscal 1957, the Air Force may spend $17.7 billion, the Navy $10.3 billion, and the Army $7.8 billion.

In recent years estimates of expenditures and revenues have been less than the actual figures. The fact is that Federal government spending has been increasing steadily. In fiscal 1958, the government's financial position will be precarious. Such government programs as foreign aid and agriculture may require more money, and it is possible that Congress will enact laws requiring additional non-defense outlays.

Trained Personnel Shortage

The shortage of engineers and technicians and the increase in production of scientific products for civilian and military uses has increased the pay of civilian and technical industrial workers. This situation strained efforts to retain in the services skilled personnel, many of whom were being attracted to the higher pay of civilian employment.

The Cordiner Committee, headed by Ralph J. Cordiner, President of the General Electric Company, was named by Wilson to make an investigation. Members of the committee visited numerous posts and bases in the United States, Alaska, and the Far East. They had sessions with enlisted men, noncommissioned officers and commissioned officers regarding their needs.

Among the things recommended to the committee are:

Changes in longevity pay.
A revised pay grade structure.
Higher pay for technicians.
Various pay scales within the same grades or ranks.
Special pay for remote station duty.
Flexible reenlistment bonuses, with higher bonuses to attract skilled enlisted personnel.
Special pay for senior officers.

According to committee spokesmen, military pay scales have been compressed in recent years; enlisted men have gained on officers and there is not sufficient leeway in the pay of the various officer ranks. Since 1908 officers' pay, translated into purchasing power, has increased only 50 percent, while the purchasing power of enlisted personnel has increased 800 percent.

In this situation, a committee official said, a man's desire for promotion might be dulled, since the responsibility of the better position is greater than the increase in pay.

The committee's recommendations probably will embrace more than pay. It is being urged to suggest improvements in other factors, such as leave, housing, dental care, retirement, taxes, etc.

Oppose Longevity System

The committee is expected to suggest some changes in longevity pay. The civilian members of the Cordiner Committee are said not to be in favor of the present longevity system of pay.

The present system, it is pointed out, results in juniors sometimes being paid more than seniors, in permitting a man with comparatively little initiative to keep his rank and continue to receive pay increases. The civilians, it is said, want a pay system more in line with human motivation.

If drastic changes in longevity pay get past the Defense Department, the Budget Bureau, and the White House, and are submitted to Congress, bitter controversy can be expected.

Pending Legislation

Some pending legislation was introduced in the 84th Congress; some is entirely new. Some is still being studied.

Housing. Legislation on substandard quarters, similar to the bills H.R. 5731 and S. 1947 introduced in the 84th Congress, will be sponsored. It is expected to authorize the Services to designate as rental housing any housing they consider inadequate as public quarters, and permit personnel to occupy such housing without loss of any of their quarters allowance. If the Defense Department version is enacted, Service families would save $35,000,000 annually in rentals.

Cadet-Midshipman-ROTC Service Credit. For many years efforts have been made to enact legislation which would credit time spent by officers at the Service academies and ROTC-NROTC schools. During the last Congress bills were introduced which would credit this time for longevity pay purposes. There is a good chance for the bill in the 85th Congress.

Inter-Service Transfer of Officers. This pending bill would provide authority for the transfer of Regular and Reserve officers between the various Services, provided both the officer and the department are agreeable. A similar bill was pending before the House Armed Services Committee in the 84th Congress, but did not get out of committee.

Transportation. While some good bills on transportation and storage were enacted in the last Congress, apparently there is demand for more. One pending proposal would authorize transportation of dependents and household goods to permanent station of personnel serving overseas who marry on leave or while on temporary duty in the United States, Alaska, or the territories. This would amend existing law authorizing movement at government expense only to the next permanent change of station after date of marriage.

The wife of a Colonel, USA, has written us suggesting a bill which would base transportation allowances on number of children. Service families with several children, she claims, lose considerable money on every move, for they either have to sell children's household goods at a loss before moving or pay heavy freight charges.

Exchange Store Operation. The Defense Department has been making studies to determine the feasibility of authorizing post and base exchange stores to liberalize sales and handle more consumer goods. At many locations, for instance, it would help Service families to have more necessities, as children's apparel and automobile accessories, available in Service stores. Congressional approval of such a move probably would be required.

These are only some of the bills which will be sponsored this year. Some bills, as that hardy perennial calling for free barber service, will not get to first base. We thought an 84th Congress bill calling for uniform rations was not practical, but then we heard that the Defense Department is planning uniform rations, with meat for every breakfast. Perhaps someone will introduce a bill making the provisions of "Operation Overlard," a plan to help Pentagon officers trim their waistlines, applicable to all deskbound officers.

● The most significant factors affecting the future operations of the Army are new developments in the fields of firepower, mobility, and communications, with emphasis on atomic weapons, guided and ballistic missiles, and Army aviation.

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NATION'S DEFENSE SYSTEM

Management Briefs from the Services

Headquarters Air Training Command, Scott Air Force Base, Illinois. Lt. Gen. Charles T. Myers, ATC Commander, was recently presented a special plaque and award by Mr. John A. Watts, Director of Civilian Personnel, Headquarters Department of the Air Force. The Air Training Command received the gold-engraved trophy in recognition for its 25.02 percent participation rate in the AF Civilian Suggestion Program. Twenty-one ATC bases will receive Certificates of Achievement signed by General Nathan Twining, USAF Chief of Staff, for accomplishments in exceeding the 20% goal set forth by Headquarters USAF.

Engineer Research and Development Laboratories, Fort Belvoir, Virginia. A machine capable of applying loads up to 400 tons on experimental military bridges is helping turn out better structures. Pilot models of bridges are subjected to several series of tests, including structural tests. During this series, a bridge undergoes a prearranged schedule of both static and dynamic live loads designed to simulate its actual field test. Extensive use is made of electrical strain gauges for determining actual stresses in bridge members when under load. The need for the new machine arose with the establishment of a postwar bridging program based on exceedingly heavy load requirements.

Naval Air Station, Alameda, California. A recent tabulation within the Beneficial Suggestion Program placed NAS ALAMEDA ahead of all other Bureau of Aeronautics activities. 970 suggestions were submitted during the period January 1 to June 30, 1956, with 464 adopted and paying-off a total of $14,857 to the winners. Savings for the first year of $411,826 were reported. Figures show 146 suggestions per 1000 station employees as compared to 125 for the entire Naval establishment.

Camp Lejeune, North Carolina. Marines and their dependents stationed at Camp Lejeune have a new insurance counseling service, designed to protect them from unscrupulous agents of unlicensed companies. The new base order requires all agents to be registered and to meet certain requirements established by the Base and the State of North Carolina. A seven-day waiting period is imposed before government allotments can become effective, and during this time the Marine will receive counseling about the policy he has selected, benefits under the Survivor Benefits Act, and a review of his overall financial obligations.

Ordnance Tank-Automotive Command, Detroit, Michigan. An estimated 46-million inches of government red tape has been eliminated because a Detroit woman was "sure there was an easier way to do things."

Ruby Finch, a supply distribution officer with the Field Service Division of the Ordnance Tank-Automotive Command, maintains worldwide inventory records on automotive spare parts for the U. S. Armed Forces. She receives information for these records from 12 Ordnance depots on thousands of 150-inch tapes.

"One day when I was overwhelmed with paper work it occurred to me there must be an easier way to do things," the 42-year-old federal employe said.

Ruby submitted a suggestion to consolidate the information put on tapes. The suggestion, which OTAC officials said will eliminate an estimated 45-million inches of tape a year at a savings of nearly $9,000, earned her $220 under the Command's Employee Suggestion Program.

USS Vega, FPO, San Francisco. For two years, the U. S. Navy has experimented with the vertical pocket conveyor—the VPC—similar to the portable cargo belts used on Caribbean banana freighters. Last month, the first practical installation and time trial of the new system aboard the year-old refrigerator ship the USS VEGA in Yokosuka, Japan, gave VPC its verdict: "Success". The floating supermarkets of the fleet equipped with VPC can now feed provisions out of the ship's hold at two to three times faster than the conventional handling method. One hold installed with the machine moved 58 short tons of provisions an hour (40 packages a minute) or an estimated cargo rate of 15 to 20 tons an hour. Tests will continue aboard this super grocery wagon with a view toward fleet installation of the new system.

Air Materiel Command. Wright-Patterson Air Force Base, Ohio. A reduction in requests for appropriations from Congress of 5.6 billions of dollars since 1951 has resulted from the "Hi-Valu" concept and modernization of material management, the Air Force has recently announced. In explanation, Major General Frederick J. Dau, USAF, AMC's Director of Supply who is vice chairman of the Spares Study Group that administers the "Hi-Valu" program, told the group that the money requested for aircraft spares of Congress had been reduced from 43 to 25 percent of the total aircraft program in the past five years.

Fort Carson, Colorado. Helicopters are replacing the time-honored Army mule. When the 4th Field Artillery Battalion (Pack), which was organized almost half a century ago, becomes a part of Army history this winter, its designation will be moved to Fort Sill, Oklahoma, where it will become the experimental 4th Airphibious Field Artillery Firing Unit. Continental Army Command officers anticipate that the airphibious unit with 224 officers and enlisted men, could move 650 miles in a day's flight.

Naval Air Station, Pensacola, Florida. Captain Carson Hawkins, USN, Commanding Officer, recently presented Mr. Marvin Goldsby and Mr. Ray Edwards, with "Good Neighbor" certificates. Mem-

bers of the Pensacola Fin Divers, a local skin-diving club, the pair answered a call by the Escambia County Sheriff's office recently at 1:45 A.M. Equipped with rubber shirts, face masks, swim fins and self-contained underwater breathing apparatus and working at a depth of 23 feet, they spent about an hour beneath the icy waters of the canal locating and extricating a service man and woman killed when their auto plunged into the canal on the Gulf Beach Highway.

Headquarters First Army, Governors Island, New York. Here's a suggestion record, can you beat it? William A. London, assistant mail supervisor won his sixth and seventh suggestion awards since June 1955 last month at Governors Island. Another fast record was established by Miss Anita M. Fellman, who within her first month working in the AG Section, she submitted and won two suggestion awards.

United States Coast Guard Academy, New London, Connecticut. The recent officer candidate class graduating at New London was the largest in several years. 45 of the new ensigns were Coast Guard enlisted men who took Regular commissions for temporary service. The other 41 were college graduates taking Reserve comissions and reporting for three-year active duty tours. Top academic honors in the class were won by Ensign Ben Ramsey, former editor of the Coast Guard Magazine.

Rapid City, South Dakota. Two Navy officers last month ascended to 76,000 feet (14 miles in a balloon, establishing a new record. 72,395 feet was the former record established in 1935 from the same location. Lt. Comdr. Malcolm D. Ross and Lt. Comdr. Morton L. Lewis, dressed like men from outer space made the trip in two hours and 50 minutes, and landed safely in a pasture in northern Nebraska. A large cargo parachute attached to the pressurized gondola lowered them after the big plastic helium-filled balloon was cut away upon nearing the earth.

Fort Sill, Oklahoma. Fourth Army last month established an instrument flight school for Army aviators at Fort Sill. The school will be operated by the Spartan Aircraft Company under contract to the Army. The school will offer an eight-week course paralleling the instrument flight training course conducted by the Army Aviation School, Fort Rucker, Alabama.

University of Pittsburgh, Pittsburgh, Pennsylvania. Twenty officers representing military branches of the United States Government were among the 78 men who recently completed the eight-week course in Management Problems for Executives. The Army was represented by five officers, the Air Force by one officer and five civilians and the Navy by four officers and five civilians. Administered and staffed by the College of Business Administration, the graduates were selected by the promise they have shown in the administrative or executive field.

Duluth Air Force Base, Duluth, Minn. Thrill-packed maneuvers by a unit of supersonic F-102 jet interceptors left the 150,000 residents of this Lake Superior "Twin Ports" area confident today they enjoy the nation's finest aerial protection against possible enemy attack.

A week-end open house and Sunday air show at the Duluth Air Base introduced the Delta-wing all-weather aircraft of the 11th Fighter Interceptor Squadron, 343rd Fighter Group, as the first combat-ready unit of F-102's in the Central Air Defense Force. "Partners in Preparedness" was the theme for acquainting the community with its newest members.

United States Coast Guard Academy, New London, Conn. The cadets of the Academy have a new mascot, a bear cub. The old bear-cub mascot system was revived after 20 years; the new cub is named OBJEE V, the fifth to wear the Academy colors. The idea was dropped because of the hazard which came as Objee grew into a man-whalloping pet each year. Under the new system, each year at the beginning of the football season, a new Objee will arrive and his predecessor will be relegated to the farm.

Command Management School, Fort Belvoir, Virginia. One of the Army's top educational institutions, the Command Management School last month graduated its 1,000th class participant since its inception in the fall of 1954. Colonel Leslie D. Goodall, Assistant Chief of Staff, G3, of the Armed Center, Fort Knox, the 1,000th graduate, was a member of the 21st class.

Headquarters Strategic Air Command, Offutt Air Force Base, Nebraska. A total of 52 suggestions were considered by the SAC Incentive Awards Committee last month and $405 in awards, went to eight noncoms. Top award went to T/Sgt. Ignatius L. Alvey, Jr., of Castle Air Force Base, California. Upon recommendation from Headquarters United States Air Force, he received $100 for his suggestion on a bomb salvo switch modification.

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China Lake Naval Ordnance Test Station, California. Dr. William B. McLean, technical director, last month received the highest cash award ever made under the government's incentive awards program. $25,000 was presented to Dr. McLean for his key role in developing the Navy's new air-to-air guided missile Sidewinder.

Fort Benning, Georgia. The highest cash award of $405 paid for a suggestion during the 1956 fiscal year, was recently presented to Edmund B. Van Meter, who designed a gauge to measure the wear of end connectors on the tracks of M-48 tanks. Regulations require that track end connectors be worn not more than 3/32-inch before reversing, but there were no methods for measuring the connectors. The gauge has been adopted Army-wide and supplied to all units using M-48 tanks. The suggestion will save approximately $123.84 per M-48 tank, and at Fort Benning alone this amounts to more than $35,000 per year.

Sharpe General Depot, Stockton, California. The new U.S. Army Ionizing Radiation Center which will investigate the use of ionizing radiation in the preservation of food and other projects of interest, will be located at Sharpe General Depot and be under the operational control of the Quartermaster Research and Development Command at Natick, Massachusetts. The Center will be constructed by the Army Corps of Engineers and will include a nuclear reactor which will be constructed by the Atomic Energy Commission.

Plattsburgh Air Force Base, New York. Management improvement awards amounting to $105 were presented recently to five airmen by Colonel I. J. Klette, USAF, Base Commander. The accepted ideas included a more efficient method of consolidated distribution, a bus stop marking system and the use of templates in making ramp flags for the flight line.

Naval Training Center, San Diego, California. More than 6,000 Navymen and their families attended three performances of "Spirit of the Navy," spectacular pageant of Naval history, last month in Luce Auditorium at the Naval Training Center. Among the special guests at the colorful Navy Day pageant were Mrs. Marc Mitscher and two retired full admirals, Admiral W. H. Standley and Admiral Richard Jackson. Captain George O'Brien, production director of the original showing in Washington, and Commander Alan Brown, who wrote the script for the pageant which was staged at 16 installations throughout the Naval establishment also attended the show in San Diego.

Alaskan Communications System, Seattle, Washington. The U. S. Army and the Bell Telephone System opened to public service on 7 December, a new and important communications link between the United States and the growing Territory of Alaska. The link consists of an underwater telephone cable system stretching some 1,250 miles from Port Angeles, Washington to Skagway, Alaska.

Reese Air Force Base, Lubbock, Texas. Colonel D. Ross Ellis, USAF, Base Commander and Lt. Col. Charles El Wilson, USAF, Chairman of the Awards Committee, recently presented awards to ten supervisors who have given encouragement in the base suggestion program. In the letters of appreciation, the men were honored for conscious effort during the past year in encouraging their subordinates to participate in the suggestion program.

Naval Supply Center, Pearl Harbor, T.H. Supply officers of ships moored at Pearl Harbor were recently relieved of another time-consuming task when the Center announced they would take requisitions for GSM, provisions, clothing, POL products and repair parts, by telephone. Dockside delivery of the supplies is just about as fast as the requisitioning procedure. Paper work has been reduced, time has been saved, and all participants can be congratulated on an idea well executed.

National Capital Command, United States Army, Washington, D. C. January 1 marked the date for the change in designation from the old Military District of Washington to the National Capital Command.

Headquarters Air Materiel Command, Wright-Patterson AFB, Ohio. Five employees of AMC recently divided $3,085 in Special Acts awards presented by General E. W. Rawlings, Commander of AMC. The largest amount was $2,135, divided equally between Thomas H. Dickman and Albert J. Goebel. Earlier the pair had divided $1,000 for the same special act, bringing their total winnings to $3,135. The award was for their suggested modification of turbojet engines which were surplus to Air Force needs, but could be used by the Navy. By following their suggestion, early delivery of the engines was made to the Navy, with resultant reduction in costs of $2,508,731 during the first year.

Mare Island Naval Base, California. Rear Admiral William V. O'Regan, assistant chief of Naval Operations for logistics, has been ordered to relieve Rear Admiral John R. Redman as commander of the Mare Island Naval Base. Admiral Redman is commandant of the 12th Naval District, and has held the post at Mare Island as an additional assignment.

Fifth Infantry Division, Fort Ord, California. Brigadier General William M. Breckinridge, USA, will take command of the 5th Infantry Division next month. He will succeed Major General Gilman C. Mudgett, who will report to Alaska in February.

Headquarters United States Marine Corps, Washington, D. C. Major General Ion M. Bethel, USMC, has assumed the duties of Quartermaster General, replacing Major General Raymond A. Anderson, USMC, who has held the post since February 1, 1955, and retired from the service on December 31, 1956.

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Programming Analysis— The New Management Look At Anniston Ordinance Depot

"The most important single improvement that has occurred during the past year . . . "

by Harold E. Klontz

Professor of Business Statistics
Alabama Polytechnic Institute
Auburn, Alabama

RECENT ARTICLES in ARMED FORCES MANAGEMENT have stressed the need for management personnel having an adequate factual basis for their decisions. For example, in the December 1954 issue we read: "In practicality, any decision is only as sound as the facts which support it. Management needs more facts, more analysis, and more interpretation to form the basis for administrative action. The search for facts precedes all solid decisions."[1]

In the April 1955 issue, Dr. Moberly writes: "It was felt . . . that the greatest improvement could be made by increasing the facility with which management data were gathered . . . the upper levels of ordnance management were relatively well equipped to make the necessary decisions but had inadequate sources of data and recommendations . . ."[2]

This article describes Programming Analysis, the most important single improvement that has occurred during the past year in the collection and use of management statistics at the Anniston Ordnance Depot, Anniston, Alabama (AOD). As a consulting statistician during the summers of 1954 and 1955 I had a part in developing this procedure.

Anniston Ordnance Depot

The Anniston Ordnance Depot is located ten miles from Anniston in the northwestern part of Alabama, approximately half way between Birmingham and Atlanta. Construction of the depot was begun with a ground-breaking ceremony on 17 February, 1941. For the first two years of its existence, the depot was operated by the Ordnance Department. The Chrysler Corporation assumed management of the depot on 16 October, 1943, and operated it until 3 September 1945 when it was transferred to full army control again. There have been ten commanding officers, the present one being Col. C. J. Williams.

The depot covers 15,000 acres and contains approximately 1,350 buildings. A.O.D. is one of the country's four largest depots distributing both general supplies and ammunition. The principal missions are (1) distribution of ordnance general supplies and ammunition to the Third Army Area and (2) maintenance of combat vehicles, artillery, small arms, fire control materiel, and transport vehicle subassemblies.

Programming Analysis

Attempts had been made previously at AOD to inaugurate an improved management statistics program without much success. A survey of the available management statistics revealed that some divisions had been collecting adequate data for years and had a rather complete picture of past and present performance. For them there already existed an adequate statistical base to be used in forecasting future workload. Other divisions had little or no numerical data showing their operations. In fact, some divisions and branches *began* the keeping of records during the summer of 1954. In them no statistical records had been kept before.

The final impetus to the establishment of Programming Analysis at A.O.D. was provided by a letter to the depot commander, Col. C. J. Williams, from Brig. Gen. J. H. Hinrichs, Assistant Chief of Ordnance. This letter in part stated: "It is essential that the Commanding Officer have really available to him a visual (chartered translation of the management statistics maintained with regard to each of his major missions . . .

. . . It is essential, in my opinion, that all commanders also have before them the forecast of what they plan to do on the same chart or table as the other data . . ."

Programming Analysis at A.O.D. really dates from 2 July 1954 with the issuing of an office memorandum by the depot commander. This memorandum stated that ". . . all divisions will prepare and maintain Division Programming Analysis which they will use personally in their operation and also use advantageously in briefing visiting officials from other installations and agencies. This programming analysis will show, as far as your operation is concerned, not only your history such as 'where you have been' but will also show 'where you are' and 'where you are going.'"

Programming Analysis basically consists of three things:

1. Forecasting future workload
2. Programming or scheduling personnel and facilities to accomplish this workload
3. Analyzing the actual workload accomplished compared with the forecast

All divisions and offices are required to record their forecasted workload, actual workload, and other data in a uniform manner in a Programming Analysis Book.

Depot Memorandum Nr. 43, dated 6 July 1954, and subsequent Standing Operating Procedures specified the procedure for preparation of a Division Programming Analysis book. It was specified that each Division Programming Analysis book should contain as a mini-

mum the following information in the following order:

1. Table of contents
2. Organization and manning charts
3. Functional statement
4. Facilities
5. Personnel and leave data
6. Workload and forecast
7. Comparison with other distribution depots (all phases that are applicable)
8. Management improvement
9. Work simplification.
10. Major administrative policies
11. External reports
12. Monthly written review and analysis (by division chief)

All divisions and offices prepare Programming Analyses. These range from the Provost Marshal's Office and Quality Control Office to the Ammunition Storage Division. In addition, each branch of the Comptroller's Office and each branch of the Miscellaneous Services Office maintains its own. Altogether, twenty-four Programming Analyses are prepared by divisions, offices, and branches.

The heart of Programming Analysis is the workload and forecast. This section contains charts showing past production data and also forecast workload for the following six to twelve months. All activities which can be forecast are expected to be forecast and plotted on a chart which also shows actual production. Each month actual production is plotted on the same chart as the forecast.

Many initial forecasts were entirely too subjective. Often a forecast was made by someone taking a colored pencil and rather arbitrarily drawing a dotted forecast line on the production chart. Since the initial stages of the plan, forecasts have improved. The present S.O.P. concerning the preparation and utilization of Programming Analysis specifies:

1. Assumptions upon which forecast is made shall be stated.

2. If actual workload differs substantially from forecast, the assumptions used in arriving at the forecast shall be critically reviewed.

3. In the above situation it should be determined whether the upsetting factor could reasonably have been anticipated.

The Program Review and Analysis Branch is prepared to provide statistical computation service to division chiefs; to measure trends, seasonal patterns, correlation, and other characteristics. Such statistical measures as these can provide a sound statistical basis for the stated assumptions and forecasts.

Program Review and Analysis also is attempting to obtain the widest practical use of a new charting technique which provides an objective method of evaluating the validity of the forecast. This charting technique makes use of control limits so widely used in quality control charts. With control limits drawn above and below the forecast line it is a relatively simple matter to discover whether the actual production is following the forecast pattern. This type chart is in reality a quality control chart enabling the quality of the forecast to be judged.[3]

Written Analysis

The division chief each month is required to review his operations and place in the Programming Analysis book a written analysis of the past month's production. Special emphasis is given to a comparison of actual workload with the forecast workload.

Three copies of the Programming Analysis for divisions under the Assistant for Supply Operations are prepared and distributed as follows: one copy for division chief, one copy for Assistant for Supply Operations, and one copy for the Comptroller. The branches of the Miscellaneous Services Office also prepare Programming Analyses in triplicate and distribute them as follows: one copy for the branch chief, one copy for the chief of Miscellaneous Services Office, and one copy for the Comptroller.

All other divisions and offices prepare two copies of their books: one for division or office chief and one for Comptroller. The Comptroller has a complete set of the Programming Analyses in his office. These, of course, are available to the commanding officer at anv time. Program Review and Analysis Branch, however, extracts the most important data from all divisions and compiles a special Programming Analysis for the depot commander. All workload forecast charts are included in this book.

Preliminary and Command Briefings

An important development accompanying Programming Analysis is the system of preliminary and command briefings. In a command briefing a division chief sits in the depot commander's office and personally briefs the commander upon the performance of his division during the past month.

The Comptroller and the chief of Program Review and Analysis Branch of the Comptroller's Office also attend each command briefing. In addition, the Assistant for Supply Operations attends the briefings given by the operating divisions, and the Assistant for Administration and Services attends the briefings given by the divisions under his supervision.

The command briefing procedure is standardized. The division chief places before the depot commander a copy of the Programming Analysis book for his division. This is the copy which remains in the Comtroller's Office. The chief then reviews his operations for the past month, giving particular attention

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to a comparison of forecasted and actual workload. If there is a substantial difference between forecasted and actual production the reason will have been noted on the face of the chart and any additional explanation needed is given by the division chiefs.

A stenographic record of each briefing is made and forwarded to division and branch chiefs concerned. These minutes are kept in the Programming Analysis books and serve as a guide to future action. Policies and decisions stated therein are expected to be put into effect immediately and questions raised are answered as soon as possible.

The Program Review and Analysis Branch of Comptroller's Office schedules the command briefings which take a maximum of six hours per month. Following is a listing of the divisions and branches which give monthly or quarterly briefings.

Monthly Briefings

1. Assistant for Supply Operations (ASO) briefs the commanding officer on accomplishment with regard to supply mission of the entire depot.
2. The divisions supervised by A.S.O. report individually:
   a. Ammunition Storage and Maintenance
   b. General Supplies Stock Control
   c. General Supplies Storage
   d. Depot Maintenance (repair and rebuild)
3. Comptroller briefs commanding officer on financial aspects of depot operations.
4. Management Branch of Comptroller's Office
5. Surveillance
6. Quality Control Office
7. Miscellaneous Services Office

Quarterly Briefings

1. Branches of Comptroller's Office except Management
2. Depot Facilities
3. Civilian Personnel Office
4. Safety Office
5. Transportation
6. Adjutant's Office
7. Provost Marshal's Office

Preliminary briefings are scheduled prior to the command briefings for the purpose of preparing division chiefs for their presentation to the commanding officer. These briefings are scheduled and monitored by a representative of Program Review and Analysis Branch.

The system of command briefings is probably one of the most important developments at A.O.D. Each division chief is required to be so familiar with the performance of his division each month that he can give the depot commander a detailed description and answer any questions raised. The command briefings differ from the usual executive council meetings at which the commanding officer meets with all the division and office chiefs together and consider depot-wide as well as individual problems. These executive council meetings are important but they can in no way take the place of a series of command briefings by individual division chiefs.

Progress to Date

Prior to the inauguration of Programming Analysis, most administrators served mainly as firemen, rushing around and making on-the-spot decisions as crises developed. The present procedure provides a much more adequate statistical basis for management decisions than previously existed.

The division chief is required to keep in one cover a complete record of his operations and to be so familiar with his current activities that he can describe them in detail to the commanding officer. Especially important is the requirement that he forecast his workload and maintain a charted record of his forecast and accomplished workload.

Before he can make a reasonable forecast the division chief must first analyze his operations and discover trends, seasonal patterns, and the like. For the most part this analysis has been performed merely by inspection of the recorded data. However, by combining trends revealed by historical data with estimates of future activities from other sources such as the office of the Chief of Ordnance, rather good forecasts have been made.

Programming Analysis enables the Anniston Ordnance Depot to carry out more effectively its part in the Army Program System. Major General L. R. Dewey, Assistant Comptroller of the Army, in the September 1955 issue of ARMED FORCES MANAGEMENT lists three basic elements of the Army Program System:

1. Program development
2. Program execution
3. Program review and analysis[4]

At Anniston each division and office chief as part of his Programming Analysis, goes through these three similar steps:

1. Forecasts and schedules workload
2. Performs actual workload
3. Reviews and analyzes his operations given particular attention to a comparison of forecast with actually accomplished workload.

This procedure does not involve advanced mathematical or statistical procedures and thus can be readily carried out by management personnel who have a minimum of statistical training. It enables administrators at Anniston to exercise the management function more adequately and to make better management decisions. At the Anniston Ordnance Depot, Programming Analysis is a practical down-to-earth approach to the management statistics problem.

Navy to Build Two Fast Subs

Washington (AFPS)—Contracts totaling more than $20 million have been awarded two shipbuilding firms to construct a pair of attack submarines modeled along the lines of the Albacore, the Navy's fastest underwater craft.

The Ingalls Shipbuilding Corp., Pascagoula, Miss., and the New York Shipbuilding Corp., Camden, N. J., will build the subs, the SS-581 and SS-582.

Both vessels were authorized in the last session of Congress for the fiscal 1956 shipbuilding program.

[1] J. W. McDermott, "Efficient Administration promoted through use of Management Surveys," *Armed Forces Management*, Vol 1, Nr 3, December 1954, p. 21.

[2] Russell L. Moberly, "The Ordnance Management Engineering Training Program," *Armed Forces Management*, Vol 1, Nr 7, April 1955, p. 9.

[3] For a brief description of this method see *Factory Management and Maintenance*, Vol 110, June 1952, pp. 108-109.

[4] Major General L. R. Dewey, "The Army Program System," *Armed Forces Management*, Vol 1, September 1955, pp. 12-15.

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Let's Start Talking The Same Language

Military Management Terminology Is An Almost Impossible Exercise in Semantics. Here's One Solution . . .

by Robert B. Kimble

Hundreds of official military documents are in circulation today purporting to describe the functions of both individuals and organizations. In one sense these statements achieve their aim. They specify areas of interest and indicate varying degrees of responsibility. They manage to convey a general picture of an individual's or an organization's authority. But this picture, while vivid at the center, tends to become blurred at the edges. When it becomes necessary to determine without equivocation the precise nature and scope of one's authority and responsibility, so many insurmountable unknowns are encountered that a solution becomes almost impossible. The resort then must be to higher authority for a decision.

The principal cause of this situation is the absence of unified military management doctrine and terminology. The terms commonly used in functions papers to denote actions, missions, responsibilities and relationships are not selected from an official body of doctrine, and while they mean one thing to the author of a functions paper, they may have infinitely differing meanings to others.

For example, a typical military functions paper specifies that Agency A has "staff control" over Agency B and "staff supervision" over Agency C. Is Agency A's authority and responsibility the same in both cases? There is no reason to conclude that it is. Actually, one should be able to assume that such official distinctions are made only after careful deliberation and represent clear delineations of responsibility.

The various military dictionaries and glossaries do not clearly distinguish among the many management terms currently in use. In fact, to arrive at official, binding distinctions one must sometimes resort to the decisions of the courts.

This is obviously an intolerable condition. Without an official body of management terminology, a clear delegation of authority and responsibility is impossible.

The sheer quantity of terms used to denote functions is another problem. At present, a great variety of closely related terms are used, each apparently meaning something slightly different from all the others, yet seldom subject to clarification in any way. It is not uncommon to find as many as seventy-five different terms, each indicating a different kind of responsibility, in a single document. Careful analyses of these terms lead one to believe that most of them are superfluous.

Non-governmental textbooks and references may be useful in determining the meaning of some of these terms. The Dictionary of United States Army Terms (SR 320-5-1) states that it does not contain terms defined in a general dictionary unless "the definition appearing therein should be inadequate for military usage." However, most management terms defined in these references are not appropriate for military usage. There are two principal reasons for this. First, private management experts have progressed no further toward general agreement in terminology than have grammarians in the field of English grammar. A well-known management authority stated recently: "Finding a precise definition of the functions of staff people is well-nigh impossible. I found eight different descriptions of what staff work should be in the first ten books on management at which I looked." The second major reason for this inadequacy is that most academic or industrial definitions of management terms do not normally take into account the unique nature of military organization. Finally, even terms that are appropriately defined in academic or industrial sources are not binding in any way on military statements of function, and one would be indiscreet if he attempted to interpret official documents in this manner.

Consequently, in attempting to find some basis of agreement on basic Army terminology, the writer has limited himself to Army and joint documents and to the decisions of the courts.

II

The terms most commonly used to indicate jurisdictional responsibility in the Army are:

(1) Authority, (2) Control, (3) Military Control, (4) Command, (5) Command Control, (6) Administrative Control, (7) Operational Control, (8) Functional Control, (9) Coordination Control, (10) Staff Supervision, (11) Technical Supervision, (12) Supervise (Supervision), (13) Manage (Management, (14) Controlling, (15) Administer (Administration), (16) Operate (Operation), (17) Direct (Direction), (18) Coordinate (Coordination).

Listed below are the current official and quasi-official military definitions of each term, as well as the judicial constructions that may exist. Any improvement of these definitions should combine the best points of each, indicate relationships, and be especially applicable to military organization.

For each term a new definition is proposed that is intended to embody these characteristics. The proposed definition should serve as a basis for reader response and ulti-

mately, it is hoped, for an official body of management terminology for the armed forces.

Authority

(1) Official military definitions of "authority" are:

(a) "power to command or take action; right of military personnel to give orders, enforce obedience, and take all necessary measures in carrying out duties . . ." SR 320-5-1.

(b) Authority is defined as the *right* to exercise power, the *right* to act as a leader or guide for other people. Authority is the right to make a decision, as distinguished from the naked might needed to impose one's will on another." DA Pam 16-7.

(c) "It is the function of authority to get a group of people working together as a team instead of at cross-purposes." DA Pam 16-7.

(d) "Military authority is formulated in regulations, directives, and orders." DA Pam 16-7.

(2) Legal definitions of "authority" are:

(a) "Legal power: a right to command or to act; the right and power of public officers to require obedience to their orders lawfully issued in the scope of their public duties." *Black's Law Dictionary,* 4th Edition.

(b) "Under the federal judiciary act . . . it is held that the term 'authority exercised under the United States' must be something more than a bare assertion of such an authority, and must be an authority having a real existence derived from competent governmental power, and in this respect the word 'authority' stands on the same footing with 'treaty' or 'statute'. (Millingar V. Hartupee, 73 U.S. (6 Wall.) 258, 261, 18 L. Ed. 829.)—*(Words and Phrases: All Judicial Constructions and Definitions of* Words and Phrases, etc.)

(3) Proposed definition:

authority—Legal power, right or jurisdiction; the power to enforce obedience and take all necessary measures in carrying out responsibilities. Military authority is formulated in regulations, directives, and orders. It may be delegated as complete command or as some form of military control.

Control, Military Control, and Command, and Command Control

(1) Official military definitions of "control" are:

(a) "authority which may be less than full command exercised by a commander over part of the activities of subordinate or other organizations . . ." SR 320-5-1.

(b) "(1) The act or power asserting authority . . . especially in pursuance of a specific plan of action. (2) Superintendence or guidance." SR 37-10-1.

(2) Legal definitions of "control" are:

(a) "Power or authority to manage, direct, superintend, or oversee." (State v. First State Bank of Jud, 52 N.D., 231, 202, N.W. 391, 402.)—W&P

(b) "To exercise restraining or directing influence over; regulate; restrain; dominate; curb; to hold from action; overpower; counteract; govern." (Owen v. Trail, 302 Mo. 292, 258 S.W. 699, 702; Hopkins v. Howard's Ex'x, 266 Ky. 685, 99 S.W. 2d 810, 812.)—Black

(3) The official definition of "military control" is:

"Control . . . exercised by an authority over an assigned responsibility limited in scope to military matters only. When circumstances dictate, military control may extend to all other matters." SR 37-10-1.

(4) The official definition of "command" is:

"authority that an individual exercises over his subordinates because of his grade and assignment . . ." SR 320-5-1.

(5) The official definition of "command control" is:

"Control . . . exercised by an authority, commensurate with rank or position of such authority, over subordinates, or subordinate organizations, in all matters pertaining to, and which are the responsibility of that authority." SR 37-10-1.

(6) From these definitions one can conclude that "control," "military control," "command," and "command control" can be defined as kinds of authority. One can also conclude that "command" and "command control" are synonymous and, therefore, they should not be used as if they denoted different degrees of authority. There is, at best, a tenuous distinction between "control" and "military control"; consequently there is little to justify their use to denote different degrees of authority. To summarize, the term "command" (or "command control") and "military control" (or "control") constitute the two major categories of military authority. "Command" is the more inclusive of the two, and indicates complete jurisdiction, while "military control," being more limited than "command," is jurisdiction over clearly specified matters only. An official definition should explain the relationships among these terms. ("Military control" is preferable to simply "control" to avoid any possible confusion with the "controlling" exercised by a controller, or comptroller.)

(7) Proposed military definitions:

(a) command—1. Command control; 2. the authority that an individual exercises over his subordinates, because of his grade and assignment, in all matters pertaining to, and which are the responsibility of that authority. (See military control for distinction between command and that term.) Command includes both administration and operation (see these terms).

(b) *control, military* — superintending or guiding authority which is less than full command exercised by a commander over part of the activties of subordinate or other organizations; the act or power of asserting authority, especially in pursuance of a specific plan of action. In contrast to command control (q.v.), military control is limited in scope to clearly specified military matters only. Military control may be exercised as functional control, staff supervision, or technical supervision (see these terms).

The Kinds of Military Control

(1) *Administrative Control.* The official definitions of administrative control are:

(a) "direction of exercise of authority over subordinate or other organizations pertaining to person-

nel management, supply, services, and other matters not included in the operational control of the subordinate or other organizations." SR 320-5-1.

(b) "(1) Synonymous with management control. (2) In a sense, administrative control may refer to the control exercised in administrative matters of units or organizations." SR 37-10-1 (Management control: "Control . . . exercised by an authority, in other than military matters, in the administration and supervision of organizational units or operations under the responsibility of said authority." SR 37-10-1).

(2) *Operational Control.* The official definition of operational control is:

"Operational control comprises those functions of command involving the composition of subordinate forces, the assignment of tasks, the designation of objectives, and the authoritative direction necessary to accomplish the mission. It does not include such matters as administration, discipline, internal organization and unit training, except when a subordinate commander requests assistance . . ." SR 320-5-1.

(3) *Functional Control.* The official definition of functional control is:

"The power and duty to prescribe policies and procedures, to require compliance therewith, and to review or audit operations within the area of responsibility." SR 37-10-1.

(4) *Staff Supervision.* The official definition of staff supervision is:

"The process of advising other staff officers and individuals subordinate to the commander of the commander's plans and policies, interpreting those plans and policies, assisting such subordinates in carrying them out, determining the extent to which they are being executed, and advising the commander thereof. Staff supervision does not include command." SR 320-5-1.

(5) *Technical Supervision.* The official definitions of technical supervision are:

(a) "promulgation of technical doctrine and development of inspection procedures for determining that the doctrines are carried out; preparation and issuance of manuals of instruction covering utilization of tools and equipment and prescribing methods and layouts necessary to achieve desired standards (not to be construed as operating control of a facility). SR 320-5-1.

(b) "Guidance by an authority over an assigned responsibility limited in scope to the specialized or professional aspects inherent therein." SR 37-10-1.

(6) *Coordination Control.* The official definition of coordination control is:

"Control . . . exercised by an authority over separate units, organizations, operations, etc., to insure integrated and harmonious relationships between such separate elements in accomplishment of a common objective." SR 37-10-1.

(7) From these official definitions, one may conclude that:

(a) "Administrative control" and "operational control" are complementary.

(b) "Functional control" is a regulatory control. It is more inclusive than either "administrative control" or "operational control," being the overall regulation of any specified function, whether administrative or operational. "Administrative control," "operational control," and "coordination control," therefore, are three kinds of "functional control."

(c) "Staff supervision" is an advisory function. It is more of a means for exercising control, than a control itself.

(d) "Technical supervision" is a form of control only in the sense that, through official guidance and inspection, it provides direction for an activity.

(8) An official definition should explain the relationships and distinctions noted above.

(9) Proposed military definitions:

(a) *control, functional*—a form of military control which includes the power and responsibility to prescribe policies and procedures, to require compliance therewith, and to review or audit operations within the area of responsibility; the overall regulation of any specified function, whether administrative or operational. Functional control may take the form of administrative control, operational control, or coordination control (see these terms).

(b) *control, administrative* — a form of functional control exercised over subordinate or other organizations pertaining to personnel management, supply, services, and other matters not included in the operational control of the organizations. Administrative control and operational control complement each other.

(c) *control, operational* — a form of functional control which comprises those functions of command involving the composition of subordinate forces, the assignment of tasks and responsibilities, the designation of objectives, and the authoritative direction necessary to accomplish the mission. It does not include such matters as administration, discipline, internal organization or unit training, except when a subordinate commander requests assistance. Operational control and administrative control are complementary.

(d) *control, coordination*—a form of functional control exercised by an authority over separate units, organizations, operations, etc., to insure integrated and harmonious relationships between separate elements in the accomplishment of a common objective.

(e) *supervision, staff*—a form of military control consisting of advising other staff officers and individuals subordinate to the commander of the commander's plans and policies, assisting such subordinates in carrying them out, determining the extent to which they are being executed, and advising the commander thereof. Staff supervision should not be confused with command control or functional control.

(f) *supervision, technical*—a form of military control intended as guidance limited in scope to the specialized or professional aspects of an assigned responsibility; specifically, the promulgation of technical doctrine and the development of inspection procedures for determining that the doctrines are observed, preparation and issuance

of manuals of instruction covering use of equipment, and prescribing methods and layouts necessary to achieve desired standards. (Technical supervision should not be construed as operational control of a facility.)

Methods of Exercising Military Control (Management, Administration, Operation, and Command)

(1) The terms "command," "administer," and "manage" are discussed by General Nelson in his study *National Security and the General Staff:*

"Command – administer – manage—these are terms which have always been sources of controversy and confusion in the War Department."

* * *

"The term 'administrative' is not one always having a fixed significance, but its meaning when used with reference to War Department affairs is one which those conversant with such affairs well understand. Those duties which, by law, regulation, and established custom are, or heretofore were, habitually performed in the several bureaus or offices of the department, commonly known as administrative bureaus or offices, or at the various subordinate headquarters in the same administrative field under the direction and supervision of, and with accountability to, the head of the bureau, are duties of an administrative nature to which the statute refers, administrative duties as distinguished from those which are essentially and more intimately connected with military power of command."

(2) Captain John D. Hayes, USN, states (Command and General Staff College advance sheet 5094/4):

"Actually, do we mean 'command' when we apply it so readily to military enterprises today or are we talking about some broader form of military direction? The word "command" today seems to have been given a wide connotation by the military profession. It is used only infrequently now in its narrower sense of immediate response to the will of the leader.

"My thesis is that, despite the profession's love for the word 'command', amounting to almost a fetish, the complex units that comprise the military organizations today cannot be just 'commanded.' Some other form of direction is needed – direction of the type which is loosely included under the term 'management'."

* * *

(3) These quotations from General Nelson and Captain Hayes serve to illustrate the ambiguous resolution of this problem.

(4) *Management.* Despite the widespread use of the word "management" in official and quasi-official military documents, an official definition of the word is apparently unavailable. The United States Military Academy teaches that it is "the science of employing men and material in the economical and effective accomplishment of a mission." The courts have defined it as follows:

(a) "To control and direct, to administer, to take charge of." (Fluet v. McCabe (1938), 299 Mass. 173, 12 N.E. 2d 89, 93.)—Black

(b) "Generally applied to affairs that are somewhat complicated and that involve skill and judgment." (Com v. Johnson, 144 Pa. 377, 22A, 703.)—Black

(c) "The word 'manage' is defined to mean direct, govern, administer, or oversee; and the words 'manage' and 'control' were held to be synonymous." (Youngsworth v. Jewell, 15 Nev. 45, 48; Ure v. Ure, 56 N.E. 1087, 185 Ill. 216.)—W&P.

(d) "Word 'control' is synonymous with 'manage', and means to keep under check, to govern, to restrain, to exercise a directing, restraining, or governing influence over." (Petition of Hendricks, 232 N.W. 350, 351, 251 Mich. 336.)—W&P

(e) "To 'supervise' is to oversee, to have oversight of, to superintend the execution of or the performance of a thing, or the movements or work of a person, to inspect with authority; to inspect and direct the work of others. To 'manage' is to control and direct, to administer, to take charge of. The words 'supervision and control' comprehend an exercise of restraint or direction, of authority over, of domination and command. A 'director' is one who directs, regulates, orders, controls, or conducts. 'Administrative' connotes of or pertains to administration, especially management, as by managing or conducting, directing, or superintending, the execution, application, or conduct of persons or things." (Fluet v. McCabe, Mass, 12 N.E. 2d 89, 93.) W&P

(f) "The word 'control' means to have authority over a particular matter or thing, and the phrase 'management and control' implies the possession of the thing managed or controlled, or the right to the possession thereof." (Spencerbox v. First Nat. Bank of Idaho, 93 P. 369, 371, 14 Idaho 95.)—W&P

(g) "'Regulation' is an exercise of control, while 'management' is an exercise of conduct, in carrying on a business." (Rev Laws c. 196, #1 et seq. Cloutier v. State Milk Control Board, 28 A. 554, 558, 92 N.H. 199.)—W&P

(h) ". . . the word 'management' meaning the act of managing; the manner of treating, directing, carrying on, or using for a purpose; and the word 'operate' meaning to put

(*Continued on page 43*)

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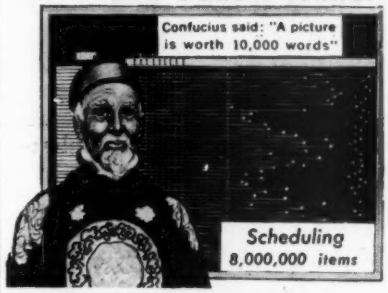

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Presstite-Keystone Engineering Products Company. A new tongue and groove joint designed especially for airport use has been announced by the Presstite-Keystone Company, manufacturers of a complete line of paving products and sealing compounds. Under the trade name of Kapco, the manufacturer claims the new joint will have the same general characteristics as the standard size nonmetallic key pioneered by the company. Since this type joint for airport construction necessitates accommodating slabs from 14" to 20" in depth, it has a larger key. A complete descriptive brochure with specifications and prices is available from our library without cost.

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AIRBORNE POWER SUPPLY

Magnetic Research Corporation. A new line transient-free, short circuit-proof airborne power supply is announced by the Magnetic Research Corporation. Designated the MRP 22-.1, the unit provides 22.5 volts (DC) for various telemetering and instrumentation applications. Complete with built-in safety features, the manufacturer states the MRP 22-.1 has a wide range of uses. May we forward you more technical specifications without any obligation to you?

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GRIP-GUARD WOODWORKING TOOL

Safety Research Corporation. Grip-Guard is a new aluminum safety woodworking tool designed to hold wood firmly by means of small steel clips that penetrate the surface. A non-slip handle keeps the operator's hands well above dangerous saw and joiner blades. Grip-guard does not mar the surface, lightweight and reasonable in cost. Injuries in your carpenter shop can be reduced claim Safety Research allowing more productive time per operator. More descriptive information is available.

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Trojan Manufacturing Company. Do you have a security problem? The new Trojan Security Hinge, developed by Plant Protection specialists at Douglas Aircraft Company, is being manufactured for military and civilian use. Trojan states the new sensational locking device can be attached to standard filing cabinnets quickly and easily and are available in several colors. A new brochure describing application and installation is available without cost.

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Remington Rand. A new compact, duplex microfilm camera that photographs both sides of a document simultaneously at any of three reduction ratios has been developed by Remington Rand Division of Sperry Rand Corporation. The Film-a-Record "Model 11" is a versatile, precision-built microfilm camera, compactly designed, yet incorporating features of cameras many times its size. The unit has a 12-inch throat, and doubles 16mm film capacity by filming up one side and down the other using the 8mm principle. Film capacity is 250 feet of 16 mm film, which can be loaded in daylight. Automatic feeding

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equipment and document stacker is available for use with the Model 11. May we send you an interesting brochure on this new camera?

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1957 REFERENCE GUIDE

Dow Corning Corporation. The new 1957 Reference Guide to Dow Corning Silicones has just been published. Almost 150 commercially available silicone products are described in this year's catalog, including several which were developed within this last year. As in previous issues, products are grouped by usage (water-repellents, dielectrics, release agents, etc.), enabling engineers to locate a material by what it does as well as what it is. This twelve-page, two-color Reference Guide will be forwarded to you without cost or obligation with your request.

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Michael Lith, Incorporated. One smaller size 8⅝" and one larger size 20½" have been added to the regular line of MICHAEL 14" Office Paper Cutters. In a statement by Michael Golde, President, it was pointed out that the 8⅝" size will serve duplicating departments with Mimeograph, Ditto and other small equipment. All three models are of the same heavy steel construction and represent the first low-cost manual paper cutters engineered along the lines of larger precision cutting machines. Complete information and descriptive literature together with prices is available.

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3. Protected pocket	Y	Y	Y	Y	11. Pocket lug riding on rail	Y			
4. Pocket tight to lug	Y	Y	Y	Y	12. Frictionless shift of pockets	Y			
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Hamilton Management Corp. Through Hamilton Funds, Inc., a managed common stock investment fund, this firm offers lump sum or monthly investment plans to fit any budget. Interested persons can inquire without obligation. Firm recently declared another quarterly dividend.

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Equipto Div., Aurora Equipt. Co. This firm now offers 4 types of shelving—iron grip stud, clip, sliding shelf, and nut and bolt—shelving to meet any requirement.

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"Project Sniff" Seeks Gust Data at Northrop

First phase of "Project Sniff," one of the nation's most intensive study programs on the effects of wind gusts on low-flying supersonic aircraft, has been completed by Northrop Aircraft, Inc.

Company experimental test crews flew a converted Scorpion F-89, crammed with sensitive instrumentation and employing a boom-type "gust sniffer" on its nose, in the initial part of a two-phase flight test program under U.S. Air Force contract.

"Project Sniff" has three primary objectives at Northrop: 1) To determine the intensity and frequency of gusts in various terrain and weather conditions; 2) To record the psychological and physiological effects on test crews; and 3) To obtain data to be used in the design of a terrain clearance indicator for jet aircraft.

Future high-speed aircraft designed for low altitude missions may incorporate much of the information gained from the Northrop study. Results may provide a new basis for the calculation of structural strengths of new aircraft designs.

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Let's Start Talking

(*Continued from page* 39)

into or to continue in operation or activity; the word 'manager' meaning one who has the conduct or direction of anything; and the phrase 'to carry on', when applied to business, meaning to prosecute, to help forward, to continue, etc." (Trozzo v. People, 117 P. 150, 154, 51 Colo. 323.)—W&P

(i) ". . . there is no legal differentiation between the terms 'management,' 'operation,' and 'control' . . ." (Maldosky v. Germaina Bank, 127 N.Y.S. 292, 293)—W&P

From these definitions it is apparent that there is little or no legal distinction between "management" and other words used to describe the exercise of control.

(5) *Administration.* The official definition of "administration" is:

"management and execution of all military matters not included in tactics and strategy; primarily in the fields of logistics and personnel management . . . interior management of units." SR 320-5-1.

The courts have defined "administration" as:

(a) "The administration of government means the practical management and direction of the executive department, or of the public machinery or functions, or of the operations of the various organs of the sovereign." (People v. Salsbury, Mich., 96 N.W. 936, 941)—W&P

(b) ". . . since 'execution' . . . means putting into force, 'administration' . . . means act of administering, especially direction or oversight of any office, service, or employment, and 'direction and control' import authority to command what shall be done and require obedience." (Greene v. Wheeler (C.C.A. Wis.) 29F. (2d) 468, 469.)—W&P

(c) Administrator: "A manager or conductor of affairs, especially the affairs of another, in his name or behalf. A manager of public affairs in behalf of another."—Black

From these definitions, one is led to conclude that the military construction of the word "administration" is of a general nature, intending it to include "management" and "execution" as components.

(6) Proposed Military Definitions:

(a) *administration* — that aspect of command which includes the execution of all military matters not included in tactics and strategy, primarily in the fields of logistics, personnel, training, etc. (See *military management and military execution.)*

(b) *operation*—that function of command which includes the management and execution of tactical and strategic matters. (See *military management* and *military execution.)*

(c) *management, military*—that aspect of administration or operation which includes determination of objectives; organization of subordinate elements; planning; coordination among all agencies contributing to the activity; direction of the activity; and controlling, that is, evaluating performance against planned objectives.

The Management Aspect of Administration

(1) FM 101-1 lists (as the "administrative cycle") six components of management: determining objectives, organizing, planning, coordinating, directing, and controlling. Official definitions of each of these terms are:

(a) "*Determine* the primary and secondary *objectives* of the activity."—FM 101-1

(b) "*Organize* for the activity by establishing a structure which will accomplish the objectives, group related functions* together, establish clear relationships, fix responsibilities, and govern coordinate effort." FM 101-1

*Functions—"when referred to 'Roles and Missions of the Armed Forces' means responsibilities, misions, and tasks." SR 320-5-1

"The appropriate or assigned duties of an individual, office, or organization. As defined in the National Security Act of 1947, amended, the term 'function' includes functions, powers, and duties. As defined in the Functions Paper, approved by the President on 21 April 1948, the term 'function' includes responsibilities, missions, and tasks." AR 320-1

(c) "*Plan,* by studying the administrative activity and the situation, and determining the future course of action."—FM 101-1

(d) "*Coordinate,** by taking action to secure and promote cooperation among all agencies contributing to the activity."

*Coordinate — coordination — "cooperation of all agencies concerned in an undertaking to ensure effective teamwork." SR 320-5-1

Coordinate with — "in consultation with. This expression means that agencies coordinated with shall participate actively; their concurrence shall be sought; and that if concurrence is not obtained, the disputed matter shall be referred to the next higher authority in which all participants have a voice." SR 320-5-1

Coordinating—"coordinating is the activity of securing the cooperation of those persons *not* under the command of the individual." FM 101-1

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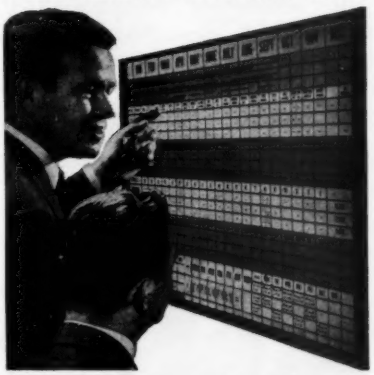

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(e) *"Direct,"* by preparing, obtaining command approval of, and disseminating necessary orders." FM 101-1

"Direct—"Directing is the activity of securing the cooperation of those persons under the command of an individual." FM 101-1

(f) *"Control,"* by establishing and applying fully the necessary means of insuring that plans, orders, and policies are complied with in such manner that the objectives will be attained." FM 101-1

"Controlling—"Controlling is the activity of determining whether the actual operation is proceeding as desired, of evaluating the facts obtained, and of taking such corrective action as is within the authority of the controlling agency." FM 101-1

"The act of evaluating, through the use of reports or records or by inspection of operations, current performance of assigned responsibilities as compared with planned objectives or established standards. The term includes, when such evaluation shows unsatisfactory performance, the action taken for purposes of correction." SR 37-10-1

(2) These definitions are mutually supporting, complementary, and generally clear. An official definition of the components of management should be an improved consolidation of these definitions.

(3) Proposed Military Definitions:

(a) *coordination*—that aspect of military management concerned with securing the cooperation of those persons *not* under the command of the individual.

(b) *direction*—that aspect of military management concerned with securing the cooperation of those persons under the command of the individual. (Compare this definition with that of *coordination.)*

(c) *controlling*—that aspect of military management concerned with evaluating performance against planned objectives, established standards, or other appropriate criteria, to determine whether the actual operation is proceeding as desired and in compliance with plans, orders, and policies in such a way that the objectives will be obtained. Controlling also includes the evaluation of the facts obtained and, when such evaluation shows unsatisfactory performance or progress, taking such corrective action as is within the authority of the controlling authority. Although controlling is properly the function of a controller (comptroller), it is of vital concern to anyone charged with the management of a military activity.

AMF Atomics Inc., subsidiary of American Machine & Foundry Company, will build Japan's largest nuclear research reactor in association with the Mitsubishi group, Tokyo, it was announced today by Morehead Patterson, chairman and president of AMF. Japan Atomic Energy Institute awarded the contract. The research reactor will be a 10 megawatt heavy water type. It will be the heart of a nuclear research center to be located about 70 miles from Tokyo. Studying a sketch of the reactor above are, from left, Dr. Ryokichi Sagane, Director of the Japan Atomic Energy Research Institute, Ichiro Ishikawa, Commissioner of the Japan Atomic Energy Commission, and Mr. Patterson.

The Execution Aspect of Administration

(1) "Execution" actually implies two actions: doing and overseeing. Despite the absence of an official explanation of the term "execution," common usage indicates that it means to carry out assigned tasks, to do that which is directed. The other word that is part and parcel of the execution process—supervision—is used so frequently in official documents to describe authority and responsibility that it deserves official explanation. Strictly official definitions are unavailable; however, there are two quasi-official definitions:

(a) *Supervision*—". . . in the military sense . . . the overseeing of affairs in the interest of superior authority"—Senate Document 119, 68th Congress, 1st Session (War Department explanation of military terminology before the Senate Military Affairs Committee.)

(b)—"act of supervising. Includes assuring receipt of order by these units and agencies for whom it is intended and making certain that order is understood; assuring that order is executed as intended by the commander who issued order; and recommending modification and elaboration of orders when circumstances demand. Effected by visits, inspections and careful study of reports."—Military Management, USMA, West Pt., N.Y., 1953

(2) Judicial constructions of the word may help to clarify it:

(a) "'Supervising' means taking part in the work . . ." (Schmidt v. American Mut. Ass. Ass'n, 71 N.W. 601, 602, 96 Wis. 304.)—W&P

(b) "To 'supervise' is defined as to have general oversight over, to superintend or to inspect," "'director' is defined as one who directs." (State v. Manning, 259 N.W. 213, 220 Iowa, 525.)—W&P

(c) "Word 'supervise' is not one of precise import and is broad enough to require either supervisor's constant presence during work supervised or his devotion thereto of only time necessary to see that it complies with contract specifications, advise as to details, . . . etc." (Catalano v. Bopst, 170 A. 562, 567, 166 Md. 91.)—W&P

(d) ". . . the power to review all

the acts of the local officers, and to correct and direct a correction of any error committed by them." (Van Tongeren v. Heffernan, 38 N.W. 52, 56, S. Dak. 180.)—W&P

(e) ". . . 'supervision' implying oversight, and the word 'control' being used to authorize additional power, such as is contained in one of its definitions, 'to exercise a restraining or governing influence over, to regulate." (McCarthy v. Board of Supervisors of Merced County, 115 P. 458, 459, 15 Cal. App. 576.)—W&P

(f) "The word 'supervise' definitely relates to act of others rather than to those of the person doing the supervising. To supervise does not mean to do the work in detail but to see that it is done. It means to oversee with power of direction." (Egner v. State Realty Co., 26 N.W. 2d 464, 471, 223 Minn. 365, 170 A.L.R. 500.)—W&P

(g) "Having general authority over employees and in strategic position to translate to their subordinates policies and desires of management." (International Ass'n of Machinists, Tool and Die Makers Lodge No. 35, v. National Labor Relations Board, 61 S. Ct, 83, 89, 311 U.S. 72, 85 L.Ed. 50.)—W&P

(3) From these definitions, one is led to conclude that "supervision":

(a) Can be applied at any echelon to describe the responsibility of overseeing.

(b) Is always done in the interest of higher authority.

(c) Implies personal knowledge and inspection of the tasks being supervised.

(4) Proposed military definitions:

(a) *execution, military* — that aspect of administration or operation principally concerned with carrying out assigned tasks. Military execution includes supervision (q.v.) of a military action as well as the action itself.

(b) supervision—that aspect of military execution involving the overseeing of military actions in the interest of superior authority. It includes receipt of order, insuring that order is understood and executed as intended by the commander, and recommending modification and elaboration of orders when circumstances demand. Supervision is effected by visits, inspections, and careful study of reports, as well as by personal presence and observation during the action.

(5) The accompanying illustration summarizes graphically the relationship among the foregoing terms.

Function, Mission, Task, and Responsibility

(1) SR 320-5-1 states that a function consists of "responsibilities, missions and tasks;" that a task is "an assignment;" that responsibility is the "obligation to carry forward an assigned task to a successful conclusion;" and that a mission is "the task together with its purpose thereby clearly indicating the action to be taken and the reason therefor."

(2) SR 320-5-1 notes that the word "duty" is used as a synonym for "task" when speaking of personnel assignments.

(3) Proposed military definitions:

(a) *Function*—any area of effort comprising closely related missions. A function is performed, first, by the establishment of missions; second, by the assignment of tasks that are necessary to the accomplishment of each mission and that are supplemented with statements of purpose clearly indicating the action to be taken and the reasons therefor; and third, by the assignment and discharge of the responsibilities inherent in each task and which embody both the authority and the obligation to carry forward an assigned task to a successful conclusion.

(b) *Mission*—a principal activity through which a function is performed. A mission comprises the tasks necessary to its accomplishment, together with statements of purpose clearly indicating the actions to be taken and the reasons therefor.

(c) *Task*—an organizational assignment requiring the performance of specific actions necessary to the accomplishment of a mission. (In the case of personnel, rather than organizational, assignments, the term duty is preferred.)

(d) *Responsibility*—the authority and the obligation to carry forward an assigned task to a successful completion.

III

It would be difficult to overestimate the vital importance of a unified and official body of clear, concise, management terminology. The widespread and necessary dependence in the armed forces upon statements of authority and responsibility requires that the current situation be improved. An enthusiastic response from the readers of ARMED FORCES MANAGEMENT would bring to bear on this problem a diversity of experience and thought that would be unprecedented. It could produce a clarification of these concepts that would leave no further room for doubt and confusion. One thing is certain—if the combined readers of ARMED FORCES MANAGEMENT cannot resolve this problem, then there is little hope for progress in this field for some time to come.

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Book Reviews

by D. D. Corrigan

Where and When

"INFORMATION FOR ADMINISTRATORS," by Paul Wasserman (Cornell University Press, 375 pages, $6.00).

Foreward-looking ideas combined with diligent research, in relation to both business and government, are exemplified in Cornell's Graduate School of Business and Public Administration. Specialized branches of management are investigated and studied, making possible new avenues of research and the presentation of new material in literature through the Cornell University Press.

"Information for Administrators, a Guide to Publications and Services for Management in Business and Government," is the first of a new series of books to be known as the Cornell Studies in Policy and Administration. Mr. Paul Wasserman states clearly the reason and purpose of this book:

"Because the decision-making process for today's management is highly complex, the number of organizations and publications which supply information to aid in the formulation of intelligent decisions has been constantly growing. This volume is intended as a guide through the maze of information sources in the broad fields of business and governmental management. It is a synthesis and consolidation of resources and facilities never before considered so extensively in one volume. This manual is a departure from what has gone before in that it is not solely a bibliography or a list of publications; rather, it suggests all types of information sources, comprised not only of many kinds of published material, but also of agencies, associations, governmental programs, and other services useful to administrators."

This guidebook begins with the largest source of reference books, the library and the establishment of business branches. In these places will be found not only an access to free and complete information, but personnel trained to assist the libraray patron find what he is seeking.

Mr. Wasserman points out that another source of information is government, either federal, state, local or foreign. The author's aim has been to attempt an understanding of these materials and where appropriate information can be procured. Governmental sources are further explored in relation to legislative and regulatory data, for the careful administrator needs a background of statuatory and administrative law. Business offers much data through advisory letters, bank letters, reports, credit services and rating services. A summary is presented of the most popular public affairs journals and directories. The newspaper is also designated as another source of management information either through the financial section or through special business newspapers.

The assiduous efforts which the author devoted to sources of statistical data, research organizations, reference books, international information, and basic publications culminates in a highly useful and accurate guidebook.

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An Introduction to Engineering Measurements

"SURVEYING," by Adrian Legault, Howard McMaster and Ralph Marlette (Prentice-Hall, 430 pages, $6.75).

Certain ramifications and modifications in procedure and equipment may differ in military and civilian surveying, but fundamentally the application is the same. Topographic, route and aerial surveys are important in getting data. Computation, measurements, determining direction, construction, are all applicable to military as well as civilian use.

The three authors, all professors of civil engineering at the University of Nebraska, stress that engineers should develop the ability to visualize, to plan and think logically, to be accurate, to work carefully, to present records in an orderly manner. Theory and practice must be combined early in the engineering method.

Because the authors are engineers and teachers, they present their book in a logical manner with precision and thoughtfulness. The introductory matter concerns the historical background of surveying, with consideration to developing attitudes and thought processes. Brief descriptions are given of basic types of surveys and fundamentals of measuring and computation.

This leads constructively to the primary operations; that is, measuring distance, direction, elevations, the kind of instruments used, and an outline of the field adjustment of instruments. Next is presented the application of engineering principles, procedures, and techniques.

Specific Techniques

"COMMUNICATION WITHIN INDUSTRY," by Raymond W. Peters (Harper & Brothers, 198 pages, $3.00).

The growing awareness of the importance of two-way communication between management and personnel is being felt in both industry and the Armed Forces, or wherever men and women are engaged in an organization. The attitude factor, the human element, emotional tensions, mutual understanding—are problems of employee relations programs that when coordinated for the benefit of all result in greater productivity and higher efficiency.

The material for "Communication Within Industry," came from a study by the Esso Standard Oil Company during an employer-employee improvement program. Ad-

vice was given by colleges and universities, consulting firms, many employers, and individuals in the fields of public relations, and employee relations. Questionnaires were mailed to forty companies noted for good communications programs. Visits were made and many personal conferences were held to obtain this data.

Mr. Peters makes several references to the Armed Forces. He tells how the Army Air Forces during World War II tried a nominating technique to find natural leaders through an opinion poll. He feels this procedure could be utilized by industrial management. Films for training and morale building used by the Armed Forces is another constructive way to promote good communication. Psychological principles used by the Armed Forces to design airplane instrument panels and controls for tanks has been followed by private industry to determine consideration for desks, typewriters, and control panels.

Communication must seek to inform and to persuade. Mr. Peters stresses the importance of the exchange of information between employer and employee. The employee must communicate his needs, his desires, his fears, his hopes. The employer needs to communicate to the employee on information security, company plans, opportunities for advancement, how each individual's work is received, job stability.

There is no substitute for daily personal contact to exchange information. Any other type of communication is only supplemental, but must often be used. Counseling and interviewing are new techniques which are receiving much attention. Written communications are widely used, but must be constantly re-examined as to purpose and effectiveness. Surveys, conferences and opinion polls keep management informed as to whether or not their type of communications is obtaining the proper results or if a new evaluation is necessary of the communication program.

Specific techniques are outlined and suggested:

Evaluating communication media.

Applying human relations skills.

Conducting opinion surveys.

Establishing counseling services.

Selecting, training and assisting editors.

Writing personal letters to employees.

Using movies, radio programs, cartoons, and comics.

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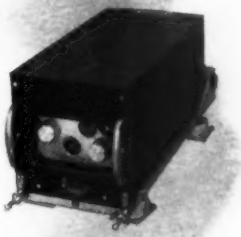

FREQUENCY STANDARDS

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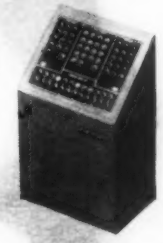

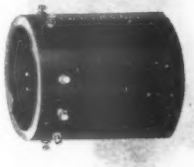

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Air-to-air missiles must be guided from the mother plane during that brief interval between the closing of the firing switch and the instant the missile locks on its target. This is the critical moment when a success or failure depends upon the exactness with which computers in the mother plane direct the missile's flight. This is the moment when nothing is as vital to the kill as the precision voltage reference system controlling the computers.

For jobs like these, electronic manufacturers have learned to depend upon Hoffman Semiconductor Zener Reference Diodes. Engineered for use in all types of precision power supplies, these amazingly rugged silicon junction components typify the continuing leadership of Hoffman in the semiconductor field.

Hoffman subminiature Zener Diodes deliver predictable outputs to ±1 per cent over a temperature range from −65°C to +150°C—withstand ±15G vibration, 100G shock and 50G acceleration loads under the severest humidity and altitude environments.

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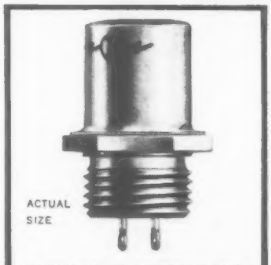
Hoffman engineers will be glad to supply additional information on request.



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